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ABSTRACT

This publication is one in a series of case studies dealing with educational innovation in various western European countries and the United States. This particular report discusses educational innovation in the Federal Republic of Germany. Rather than simply describing different educational reforms, the author uses selected examples of innovations to elucidate some of the essential prerequisites and characteristics of the current reform movement in Germany. However, much of the report is devoted to examining different types of educational innovations and describing specific innovations that the author feels are of major importance. (JG)

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INNOVATION IN EDUCATION

- GERMANY -

This paper was prepared by Dr. Helga Thomas of the Max-Planck Institut für Bildungsforschung, Berlin, to form part of a series of country studies on the subject of educational innovation.

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PREFACE

The following case study is one in a series of five dealing with innovation in education. All the studies are descriptive in nature and, as the work of five different authors writing in their personal capacity, they represent five quite individual syntheses and interpretations of vast amounts of information. Yet the confusion that might be expected from this method does not result. What emerges from these studies is instead a reasonably coherent statement of educational responses to the post-war demands of many more people for more and better education.

Perhaps it is not remarkable that the demands have been exerted so consistently on such a variety of nations, nor that the response to them has for the most part been so quick and positive. The nations examined in this book are remarkably similar in that all have a long and honourable tradition of public education, an industrialised economy and a high standard of living. At first glance it even appears that their solutions to the problems posed by recent educational demands are unusually similar: structural reform, curricular reform, compensatory and/or individualised learning systems - examples of each are easy to find in any setting. Yet a closer reading of the five case studies reveals wide and interesting variations: in priorities, in perceived solutions, in strategies evolved or developed to implement them.

Such variety of course reflects to a large extent differences in 'national climate', that peculiar combination of values, objectives, aims and administrative tradition which, aside from language, makes a nation distinctive. The explication of these differences is thus a hidden theme of the five case studies taken as a whole, and an understanding of this hidden theme is necessary to illuminate the more obvious themes of change and growth.

An explanation of this point can be found by comparing, even superficially, Scandinavian countries such as Norway and Sweden on the one hand and the United States of America on the other. At least from the viewpoint of the outside observer, Norway and Sweden have much in common. Both relatively small in terms of population, they can also claim a remarkably unified social and value structure. Furthermore, their style - if such a generalisation can be made - seems to be to have a clear idea of goals and then to set about methodically reaching them. This process is aided by the existence of strong central governments which are able to plan and to legislate with a reasonably clear assurance that what they propose will be achieved. Thus there exists in Norway the National Council for Innovation in Education whose mandate it is to make reality of reform laws passed by the central Parliament. The Parliament, concerned in recent years with "large questions of the role of schools in Society", and sure enough of its constituency, has concerned itself largely with structural reform and new curricula - on a national scale.

The situation in the United States is quite different, even if the question of relative size of total population is ignored. The American

federal government is based on a system of checks and balances so fine that it is often hard to determine either the source of impetus or its ultimate manifestation. The situation is further complicated by the well-protected existence of states' rights - particularly the control of education - and, once the issue of taxation is raised, by municipal and regional claims as well. Perhaps more important, the rich diversity of the American population inevitably means conflicting social and ethnic interests, values, and views of national priorities. The past decade of American life has indeed been one of fast-changing goals and objectives and of massive social upheaval. Much of the upheaval has connected itself to education and made demands accordingly: in the light of this political and social background, it is not surprising that American education responded by producing such a variety of innovations in every area and at every level that the final array can be quite bewildering, whilst at the same time providing a vast reservoir of experience for others.

England and the Federal Republic of Germany likewise provide differences quite distinctly their own. Writing of her own country's approach to recent educational change, the author of the English case study notes

> "..... the English style is distinctive. You can seize on it instantly. There is no acceptance of common objectives, except in the most general sense which inspired the last major education act: the need to widen opportunities and eliminate the poverty both of individual children and of the public provision of education (1). There is no national plan for education, no law which specifies where development is necessary as in some OECD countries. There is almost no theory. The point is characteristically made in a recent major report on education (2): 'We invited the help of a number of distinguished educationists and professors of educational philosophy ... They all confirmed the view that general statements of aims were of limited value and that a pragmatic approach to education was likely to be more fruitful.'"

The reference to "two decades of non-reform" in German education, a phrase coined by Professor S.B. Robinsohn, is slowly becoming eroded, especially during the last two years, which have been marked by fundamental changes in many parts of the school system. With increasing cooperation between the Länder and with the initiatives of the new Ministry for Education and Science, the need for a more systematic approach to educational reform, and especially to educational experimentation, seems more important in Germany today than in many other countries.

Despite these differences in background and style, the five country studies do show one overriding problem in common: the need to change and improve their educational systems. Furthermore, as their experience increases, they all face the reality that explicit measures to facilitate the management of educational change are necessary, that innovation and improvement cannot be haphazardly left to chance.

CHAPTER I

INTRODUCTION

The term 'innovation' will throughout this report be taken to mean specific and planned changes within any process of reform. The expression is now becoming established in German educational terminology and - even more significantly - the process it designates is beginning to receive attention in educational planning and research. These changes themselves reflect an innovative element in current efforts for reform. Hitherto, reform movements have tended to derive largely from normative theories of education, which were neither based on the real social needs and functions of the school, nor implied any true revision of existing practice.

Reforms have hitherto been more in the nature of unique global changes in an education system, or at least in one of its major subsystems, by legislative or administrative measures taken at considerable intervals - and intentionally so - in order to preserve the continuity of day-to-day practice in the schools, a continuity which was considered essential. Not only were their goals vague, but there was an almost total lack of consideration of how to carry out the proposed changes, or even how to revise these goals.

There has been a growing discrepancy, which in the last few years has gained a certain publicity, between the function of the school, that of artificially maintaining an outdated form of society, and the social, political and economic demands being made of universal education. This has shaken the traditional concept of reform. Changes have become necessary which can no longer be simply grafted onto the conventional structure of the school system, its administration and its relationship with other spheres of society. The social and economic functions of education call for goal-directed and rational changes whose effects must be susceptible to testing, revision and planning, if they are to fulfil their function. Most important are not grand designs whose realization is left to the vagaries of practice, but rather a diversity of detailed experiments and planning projects, whose effect can be measured against the overall goals of reform.

But the concept of rationalisation and maximum effectivity brings with it an added problem. The new term 'innovation', with the process it denotes, is more helpful and precise than the previous use of such expressions as 'reform measures' and 'objectives' because it implies identifiable and detailed goals, together with the means of their attainment. The attempt to describe 'value-free' changes as improvements in terms of set objectives does not, however, remove the onus of deciding and analysing the rationality and desirability of particular goals. A given set of measures may produce greater effectivity, though the goal by which such effectivity is to be measured remains far off. Similarly, there may be discrepancies between declared goals and ways of carrying them out, to which the innovations are geared. Such discrepancies are, however, difficult to analyse because they are 'objective'. On the one hand, the declared goals are not necessarily

identical with the forces behind the innovations; on the other, the actual effects of desired changes can be assessed only in the longer term. Because they are the isolated consequences of detailed measures, they cannot be calculated with much accuracy, for even the adoption of detailed goals does not alter the fact that the effect of specified measures depends on many factors, not all equally foreseen or indeed foreseeable.

The following description and analysis of innovations is offered only in the light of these reservations.

The incipient reform of the primary and secondary school system towards a comprehensive school is perhaps the clearest example at present of an experiment in goal-directed innovation. At the same time it is here that the difficulties involved in innovations can be most clearly seen; also the need for specific goal-directed changes in many subsidiary areas from curriculum development and teacher training to the legal and administrative framework of the school-system, the relationship between educational research and actual practice in the schools, and again between educational research and education policy affecting schools.

Planned changes are doubtless being carried out in many places and in many ways by individuals or groups. This report can, however, only attempt, with the help of selected examples, to elucidate some of the essential prerequisites of innovations in the current reform movement. It covers changes only in the non-vocational sector of school education, which, though it is only a component part of the educational system, has become, through its central position in the process of qualification and selection, the focal point of the national debate on education and of plans for reform.

CHAPTER II

SCHOOL REFORM IN THE FEDERAL REPUBLIC

1. The School System

Despite numerous changes in its detail, the school system in the Federal Republic remains a vertically structured, tripartite system of non-vocational schools, which has developed from the 19th century onwards. The separation of non-vocational from vocational schools has been retained.

After the first 4 (in West Berlin 6) years in primary school, selection of pupils starts for the various types of secondary school, which differ from each other both qualitatively and in the length of the courses they provide: the upper elementary school (Hauptschule), a further 4-5 years (in some federal states with an option of 6); the secondary modern school (Realschule) 5 and the grammar school (Gymnasium) 9. Only success in the final exam at the grammar school, the 'Abitur' qualifies the pupil for direct entrance to university. But since the Second World War a series of measures have been taken and new, supplementary paths through the education system have been introduced to bring some flexibility into the rigid vertical structure of the school system and to make transfers from one type of school to another easier. Attempts were made to lessen the rigidity of an early selection process administered at one brief point in time - which had proved to be highly unreliable, not being based on any objective measurement - by extending the selection process and allowing provisional acceptance in the secondary school.

Continuation schools (Aufbauschulen) were intended to give pupils the chance of taking an intermediate school-leaving examination (Mittlere Reife), by way of the upper elementary school and subsequent transfer to a shortened grammar school course. The traditional division of grammar schools (into schools specialising in classics, modern languages or natural sciences) was in certain areas extended to include schools specialising in economics, the arts, etc.

Supplementary institutions, the so-called 'alternative route' (zweiter Bildungsweg) were to provide access to the university for those who had already learnt a trade. Seen in quantitative terms, these changes in the German education system have not significantly altered the overall picture of a hierachical, tripartite school system, even though the proportion of those gaining their 'Abitur' almost doubled between 1954 and 1966, from 4% to 7.4% of the relevant age group, while those completing the middle school course rose from 8.7% to 12.1%. In 1967, the last year for which we have complete figures, there was a further rise to 14.2% leaving with the 'Mittlere Reife' and 9.3% with the 'Abitur' (1). While, however, at the middle school level the possibility of gaining the equivalent of 'Mittlere Reife' via full-time vocational continuation schools has led to a considerable widening of the group of school leavers holding this qualification (2), the 'alternative route' institutions (middle schools and grammar schools meeting only in

the evening, and other full-time colleges) have, despite a considerable rise in the numbers completing their courses in recent years, hardly fulfilled their corrective function. For example, in 1966 the number of 'Abitur' passes gained via the 'zweiter Bildungsweg' represented only 4% of those obtained in the normal grammar schools (3).

Transfers, too, from middle to grammar school remained few, much fewer, in fact, than those from middle back to upper elementary school. In addition, the relative figures of school attendance reveal that the decision about what kind of secondary school - and hence what kind of career - is, by and large, taken by the time a pupil is 13, and that only a small number of pupils are still attending some form of non-vocational school beyond the age of 16. In 1966, 62.7% of all thirteen-year-olds were attending an upper elementary school, 15.2% a middle school, and 17.2% a grammar school. Of all sixteen-year-olds a total of 23.5% were still attending some form of non-vocational school; of these 8.8% were attending a middle school and 13.0% a grammar school. Almost all eighteen-year-olds were grammar school pupils (9.8% out of a total of 10.3%) (4). There is, in addition, a considerable variation in the proportions of children attending school, of those moving on to the various secondary schools and of school leavers, both between the federal states and within them, and even within city states between districts of different social structure. In 1967 the number of school-leavers with the intermediate school-leaving examination - solely in non-vocational schools - varied, for example, between 5.6% (the Saar) to 23.6% (Bremen), and the number with 'Abitur' from 7.2% (Bavaria) to 12.2% (Hessen) (5).

Such differences in secondary school attendance are partly explained by the different motivation behind school attendance from region to region according to the composition of the local population and the prevailing social and economic structure (6), but they nevertheless reflect the problems of an education system organized on a federal basis. Despite all the trends towards uniformity since 1945, both the development and extension of the school system and the quantity and quality of education provided are still tied to the complex of local tradition and historical chance which distinguishes the individual federal states.

Regional differences have hitherto not been solely due to different levels of economic prosperity; expenditure on schools and financial resources do not necessarily go hand in hand, as a comparison of expenditure between states with a high level of tax revenue and those with a low one shows (7). The development of the school system since 1945 has depended much more on the political situation in the individual federal states, even if the differences cannot entirely be explained by a simple distinction between those states controlled by the Socialist (SPD) or Conservative (CDU) parties. After all, according to the official version, the SPD came to grief in Hamburg in 1954 because of the then universal 6-year elementary school; even if factors other than school education played a part in their demise, the fact remains that when the SPD returned to power in Hamburg their original desire for reform had markedly declined. Hesse, a traditionally SPD state, has, within its intensive reform of rural schools into neighbourhood schools, been quick to smooth the way for further extension and structural remodelling of the school system. In Bavaria, only recently have the alteration of agreements with the churches and the passing of a new Act on primary schools, by which confessional schools ceased to be the norm, permitted full extension of the primary and upper elementary school system.

The majority of these regional differences in school attendance derive from variations between school systems and from policy differences over the way education should be publicized and advertised. To this extent they constitute fundamental inequalities, which could be remedied without more drastic reforms. But it is clear that the investment in education necessary over the coming years will be beyond the financial capacity of at least some of the states (8).

For several years, attempts have been made to reduce such kinds of 'manifest lack of modernity', as a federal state minister of culture once put it, by a more intensive development of all types of school. Success rates in the schools, the numbers passing 'Abitur' and those completing the secondary modern school course are increasing, and further increases are planned (9).

More serious is the 'latent lack of modernity' in the structure and orientation of the school system, in the absence of long-term planning, the failure to constantly check progress towards specified goals, and in the still only slightly developed public awareness of the social function of the school.

What has become questionable, if as yet far from being questioned everywhere, is the demarcation of and allocation to the three types of secondary school. They originally developed in a society still ordered into classes, but were subsequently reinterpreted as specific types of school for groups of pupils who could be differentiated according to the level and direction of their abilities and in terms of the career opportunities that the prevailing economic system afforded. This hierarchical structure reflected and still largely reflects differences in the length of the various school courses, in the degree of professional training possessed by the teachers (10) and the salaries they command, in the per capita expenditure on the pupils of the three types of school (11), and the differing social prestige enjoyed by each, as reflected in differences in the social origins of their pupils.

The increasing differentiation and rapid development in the pattern of available careers and the qualifications required make the viability of this system increasingly more questionable, evidence of which can be found in the growth of a variety of schools more strongly orientated towards future careers, both in the strictly non-vocational part of the secondary school system and, even more so, in the vocational schools. The theory of ability underlying the tripartite system, which was closely related to a deterministic view of ability still widespread even in the early 1960's, has meanwhile (particularly under the impact of foreign research into ability) proved untenable (12).

It is gradually being realized that selection is the critical element in a vertically structured secondary school system. Until well into the fifties, an early and strict selection of the 'able' was considered essential to maintain the quality of secondary education. Pupils staying down in the same form and early leaving were seen to the extent that any data were available - more as the natural process of selection, in which the small elite gradually emerged, than as evidence of institutional weaknesses in the school system.

The abolition of school fees and of payment for teaching materials,

plus grants for the upkeep of children, were thought to have removed the main material obstacles to a full secondary education. Only in the last few years, when a series of studies have been made in this field, have the disadvantages and the inherent social factor in selection procedures both at the point of transition to secondary school and within the secondary school itself been exposed. On average, 50% of the intake into grammar schools and about 60-70% of the intake into secondary modern schools successfully complete the full course (13). Even the primary school takes on a selective function, without widening opportunities for access to secondary schools; it thus fails to perform its official role, i.e. of educating all pupils according to their abilities. On average, 20%, and locally up to 50% of primary school leavers leave school without successfully completing the final year of the course (14), which is increasingly becoming a precondition of entry into apprenticeship trades. Measures of comparative achievement in the various schools indicate the untenability of any division into a priori types of secondary school. Despite general differences in the level of ability between the three groups of pupils, a good deal of overlap is discernible in the distribution of attainment (15). Under these circumstances, any hierarchical grading of the amount of secondary education provided can hardly seem justified.

It is, however, much more the qualitative (rather than the quantitative) aspects of selection, above all the social impact of a monolithic selection process based on achievement, that have dominated the debate on reform in recent years. While social mobility is increasingly tied to school education and the school thus acquires a key role in the distribution of career opportunities, there has been only little change in the relationship between social class and choice of school. The elementary school is mainly attended by children of manual and farm workers, the secondary modern school by children of skilled workers and white-collar workers, the grammar school by children of parents with a university education and of civil servants (16).

In international comparisons the Federal Republic emerges as the country with the highest rate of social selectivity (17). The proportion of university students (53% in 1964-65) (18) who come from working-class families is much lower than that in other industrial nations.

In Germany, too, empirical studies have now been made showing the extent of the social and cultural barriers which the secondary school erects by the demands it makes on pupils' linguistic and cognitive abilities and on their motivation (19). But in the secondary schools themselves, the effect of these social barriers could hardly be properly seen because the low representation of certain social groups - in particular manual and agricultural workers - coincides with their low level of aspiration and this has prevented open conflict from occurring. The enormous rise in demand for secondary education found in other Western European countries since about 1955 had no parallel in the Federal Republic, a phenomenon which can be only partly explained by the fact that the birth-rate started to rise here later than elsewhere. The most recent studies, though, have shown that this apparent equilibrium between supply and demand conceals a widespread attitude of resignation and latent frustration. Almost one in every two adults in West Germany, while well aware of the value of school education, feels that his own has been inadequate (20). This dissatisfaction is as yet exerting no direct pressure for change, because it is still latent, but in its sheer volume is a potential source of social conflict.

Thus, it is gradually becoming clear that these problems are not a matter of making selection more objective and, more generally, of making the existing school system more efficient, but of changing it fundamentally. The selective, elitist function of a humanistic and literary type of secondary education is in line neither with democratic principles nor with the skills required in a complex economy. But it is more the awareness that Germany is lagging in technology that has set the reform debate in motion. The need for a scientifically planned, effective education for all, with schools so organized that their structure and content are sufficiently flexible to adapt to individual requirements, is gradually producing planned innovations in place of the discrete partial reforms which have hitherto at best reduced the worst symptoms.

2. Educational Federalism and Experiments in Central Co-ordination and Planning

In the last two years changes have been made in countless parts of the school system. New teaching media, methods of instruction and even new school subjects have been introduced in single schools and in groups of schools. Existing types of schools have been changed, sometimes combined, and new kinds of schools introduced. The reports on these experiments by now fill several volumes (21), yet still give one a feeling of confusion rather than the impression of dynamic and conscious education policy. If one looks at these school reforms it becomes clear why, despite their number, there can still be talk of "two decades of non-reform" (22) and demands for the schools to be left in "peace". Not only have a great variety of things been labelled "school experiment" and "reform" - generally mere departures from existing practice rather than planned change in the framework of a more global concept - but what experiments there have been have proved almost useless. There have as yet been hardly any goal-directed and controlled experiments within schools. Where scientific operational studies have been tried - for example the Dutch experiments with a differentiated secondary modern school - they have found little public support, were too late, or their findings were ignored. The lack of any co-ordination in the planning, carrying out, and evaluation of experiments - or at least the lack of any information on them - doomed them to remain isolated cases, which, all in all, have changed little.

This situation is often blamed on the tradition of cultural federalism, which makes even the co-ordination of information difficult, not to mention supra-regional planning. The state school system (23) is entirely the responsibility of the federal states. The local community is responsible for the running of the school and generally has to provide the cost of materials, while the federal state pays the cost of personnel. The highest authority responsible for schools is the respective federal state ministry of culture, which is in charge of cultural policy in the state and is headed by a minister of culture or - in the case of city states - senators. Beyond this there are no federal authorities whatsoever, i.e. no central responsibility for development, planning and reform of the country's education system. From developments over the last two decades it is manifestly clear that the 'historical accident' of cultural federalism has in many ways prevented the creation of a school policy geared to the needs of society as a whole. Cultural federalism and its consequences should be seen rather as symptomatic of public attitudes to education and as one manifestation of the overall social condition of a 'retarded nation' than

as a structural barrier against existing initiatives.

The principle of cultural federalism was introduced by the Allies under the Control Council Law No. 1 of September 1945, but there were in any case strong federalist tendencies among the other parties engaged in preparing a new constitution. It soon emerged that a consensus on any uniform control of cultural matters could not be expected, so - for tactical and political reasons - they were eventually not included in the Basic Law, but were left to the competence of the individual federal states. In fact, a number of the federal states showed an active readiness to reform in the first years after 1945. Such concepts as the extension of the period of undifferentiated primary education, differentiated secondary modern school education under the same school roof and experiments in integrating general and vocational education were developed (24). But by 1948-49 the willingness to make fundamental reforms had already dwindled or come to grief in the conflict between groups and political parties within the federal states. What remained was an extension of the primary school period in the city states to 6 years and in Berlin to 8 years (in Berlin it was reduced to 6 years in 1948 while in Bremen and Hamburg it ceased to be the rule again a few years later). Also experiments with a differentiated 4-year secondary modern school continued in Lower Saxony, and a 2-year transitional stage following the primary school survived, mainly in Hessen. The failure of reform plans was connected with the wake of the trauma left by national collapse in 1945. Stagnation in education was further fostered by the lack of co-ordination in the reforms made since 1945, the failure of even those federal states with similar plans to liaise with each other, and resistance to the Re-education Plan imposed by the Allies from without. The entrenchment of the East-West confrontation and the establishment of the (East) German Democratic Republic with its 'unified school system' facilitated the political denunciation of all experiments implying a removal of the vertical organisation of the school system as introducing a 'communist style' uniform school system. Under these circumstances incipient efforts in 1949 to achieve supra-regional co-ordination and standardization of the school system prevented rather than furthered reforms. In 1949 the 'Permanent Conference of the Ministers of Culture' (KMK, in its German abbreviation) (25) was set up as a body to foster unity of purpose and co-ordination in matters of supra-regional importance. This, measured against the intentions of the authors of the Basic Law, was a <u>novum</u>, but one essential to the functioning of an exclusively federal system. The KMK, a working group of the federal states' ministers of culture, has no authority in itself. Its resolutions, which have to be passed unanimously, are recommendations which become binding only if they gain the support of the respective federal state organs. This arrangement, made to preserve cultural federalism and not to remove it, has, instead of providing fundamental decisions on school policy, promoted a reactionary educational policy at the administrative level (26).

Furthermore, the KMK at first understood its task in school education to be one of producing order in the system. With the, in any case, only slight willingness to experiment in the federal states, this amounted to standardization without innovation. In 1955, in an 'Agreement between the Federal States on the Standardization of School Systems', which had the remarkable provision that it was irrevocable for 10 years, school experiments were authorized on condition that 'the essential characteristics of the existing types of school should remain' (27). Only with the revised version of this Agreement in 1964 were

experiments which departed from the agreed basic system allowed. They need, however, the prior recommendation of the KMK (28), quite apart from the fact that the federal state ministry of culture has to give its approval. Both provisions afford opportunities for the - often successful - intervention of pressure groups against new kinds of experiment, as soon as these threaten particular interests.

The difficulty of making new departures in school policy outside the framework of existing practice is evident in the relatively progressive attempts of the KMK, as for example in its now legendary 100th plenary session of March 1964. Not least inspired by school developments and educational planning in other European countries, and the needs produced by increasing European integration, the transition from the 'period of reconstruction' to one of 'further development of school and university policy' was proclaimed for Germany too. The programme included, amongst other things, a rise in the standard of education of all pupils, marked individual attention by a wide supply of course options and differentiated forms of education (e.g. the 'transitional stage' between primary and secondary school), increased opportunity for transfer between school (e.g. by horizontal organisation of the school system) (29). At the same time, however, an initiative on the part of some of the ministers of culture themselves to bring this declared programme nearer to realization, by the adoption of a binding timetable, failed.

Dissatisfaction with this situation, on the other hand, soon produced demands both for an overall competence on the part of the federal government and the establishment of a politically independent body to do the preparatory research needed for any school reform. As a result of these demands, the 'German Committee for Educational Matters' (Deutscher Ausschuss für das Erziehungs- und Bildungswesen) was set up in 1953 as a supra-regional consultative body (30). In its very constitution, its working methods and its function, it mirrored from the start the political dilemma, on the one hand, between a lack of central government authority coupled with federalism, and on the other, of inadequate professional knowledge of the needs of long-term educational planning. Its 20 members were appointed by the Home Secretary and the president of the KMK; they were supposed to be people as independent as possible from organizations and government authorities, experienced and interested, but not necessarily experts. The committee set to work with no special terms of reference other than 'to observe the development of the German education system and to promote it by providing advice and recommendations'; the task of presenting a comprehensive design for school reform was one it set itself. Its recommendations were not binding - largely because there was nobody responsible for deliberating and carrying out overall reform. Co-operation with the KMK hardly occurred in the 12 years of its existence. Specialists and existing reports could be consulted, but the budget provided by the federal government and states was by no means adequate for them to commission special reports of their own, let alone to finance investigations. These were serious deficiencies in view of the almost total absence up to the early 1960's of statistical material and surveys by social scientists. In 1959, after a series of piecemeal recommendations, the Committee published an 'Overall Plan for the Remodelling and Standardization of the State Non-Vocational School System' (Rahmenplan zur Umgestaltung und Vereinheitlichung des allgemeinbildenden öffentlichen Schulwesens) (31). It offered a compromise between retention and modification of the existing school system (amongst other things

by the introduction of a two-year transitional stage following elementary school) which, however, came under the crossfire of political and other interests and did not even escape the 'communism tag' (32). All the same, by its recommendations the Committee had got public discussion going on matters of education and, most important, had made it clear how many unsolved problems remained and how little objective information there was. It had also underlined the necessity for school experiments and scientific investigations. It had introduced the argument that the German school system 'had not kept pace with the dramatic changes that have taken place in society and government in the last fifty years' (33). In doing these things, it set in motion a national debate on education policy.

With the start of the 1960's, new life was brought into the public debate on reform of education policy and research. A wealth of studies in the sociology of education provided more exact statistical data and information on structural aspects of selection in the school system at its various levels. Surveys on the need for qualified personnel in various professions and the development of the economics of education (34) contributed to the discussion. They, above all, promoted insight into the social function of educational institutions, and into the possibility of and need for the conscious planning of processes which had hitherto seemed, by their very nature, to be unamenable to rational control. The KMK itself prepared its first estimate of school requirements for the period 1961-1970 (35), after an agreement between the federal states on the enlargement of its secretariat had made possible a systematic documentation embracing international developments, and the extension of its statistical service. However, a declaration by the KMK in December 1964 on 'urgently necessary measures in the sphere of education' made it clear that at this level plans might be expected which at least could increase the efficiency of the existing school system here and there (36). But there were still no reforms to reduce the underlying inequality and inappropriateness of the system in terms of individual and social needs.

The dilemma between the cultural sovereignty of the federal states and the need for overall planning for the country as a whole had remained. Even during the life of the 'Deutscher Ausschuss' discussions reopened about the creation of a more workable supra-regional body to produce better results. Agreement was finally reached in 1965 between the federal state governments and the central government on the establishment of a German Council of Education (Bildungsrat), initially for a period of 5 years (37).

The Bildungsrat consists of a Commission for Education (Bildungskommission) with 18 members, appointed in part by the Conference of State Prime Ministers (14), and in part by the Federal Government (4); and of a Government Commission composed of the 11 ministers of culture, 4 state secretaries from central government ministries and 3 representatives from national organizations representing civic interests. Recommendations by the Commission for Education can be presented to the parties concerned only after consultation with the Government Commission. The difficulties involved in such supra-regional arrangements, which reflect the difficult relationship between the sciences and politics, again become evident in the debate which went on for months as to whether the Commission for Education should be a body of experts or representatives. Here, too, a compromise solution was eventually arrived at under which the Commission consists of both experts in

relevant fields and representatives of key sections of society. Representatives of the Administration also participate in the Commission for Education's working groups, though without voting rights. With this complicated compromise it was intended that, in contrast to the 'Deutscher Ausschuss', the element of co-operation between specialists and representatives of the Executive should increase the chances of any recommendations being implemented.

The tasks of the Commission are more precisely specified than those of its predecessor, even if it, too, has been given no political mandate. Its function is to draw up plans outlining needs and developments in the education system in accordance with the cultural, economic and social needs of the country. It is required to put forward proposals for restructuring of the education system, and at the same time to assess the financial resources needed. Finally, it has to make recommendations for long-term educational planning. In its first session, the Commission for Education went so far as to compile a working programme for its committees, oriented towards educational problems of special urgency (38).

The position of the Council for Education and educational policy are today more promising. The Council has sufficient means at its disposal at least to gain the co-operation of experts and to call in special reports, and for these ends alone has more than the whole budget of the Deutscher Ausschuss ever amounted to. Hence there is for the first time an opportunity - which is being exploited - to collect systematically the findings available from studies and experience at home and abroad, when considering reform possibilities for Germany (39).

The work of the Council for Education to date and its first recommendations on the future organization of the secondary school system (40) clearly show, however, that the very attempt to make it more effective by changing its composition has fostered an element of compromise in its recommendations. This dilemma could hardly be solved, however, by filling such a consultative body exclusively with 'progressive' experts, as the realization of reforms requires a considerable degree of social consensus and in particular willingness to cooperate on the part of the institutions and groups entrusted with the execution of reforms.

The situation as described above may have made it clear that the demand repeatedly made for a national ministry of culture would not necessarily bring one any closer to a solution of outstanding problems, however urgent a central authority for education policy may in many ways seem. The more important precondition is a general public awareness of the need for a long-term education policy and planning, and the Council of Education could certainly contribute to achieving this. If the simultaneous publication of recommendations and unsolicited reports provide an opportunity to open up new perspectives, then the real innovative effect of this body is to be found in its recommendations on school experiments (41a). This part of its activities, since it is directed only towards experiments and not global changes, enjoys greater freedom of manoeuvre. Furthermore, school experiments as yet require no fundamental decisions on educational policy. Hence, even federal states, for example, which have hitherto planned no experiments of this kind, are now ready to take part in the comprehensive school programme (41b), which was part of a Commission of Education proposal. Local authorities, too - and they are now among the main initiators of

reforms - can in this way receive further encouragement and help.

This process of 'grass roots' reform spreading gradually 'from below' and stimulated by competition between the federal states and their constituent communities, offers at present the most promising prospect of global change in the years to come. With the interplay of information and experience which is thus coming into being, more recent school experiments differ from their predecessors. These sometimes provided outstanding models, which, however, being conceived in isolation, remained ineffective.

At the same time, in a situation marked by an increasing willingness to undertake reforms, the interdependence of the various levels of the education system, and also the connection between educational policy and basic decisions in other sectors of society, require at least a larger measure of supra-regional co-ordination, information and planning than can be secured by partial and provisional forms of co-operation between the government and the federal states. A first step towards giving the government power to decide education policy - similar to its recent authorisation to decide broad policy lines for higher education and vocational training - was taken in 1969 with the extension of government competence to the field of educational planning. The previous Ministry of Science and Research became the Ministry of Education and Planning. To what extent introducing mere participation in educational planning - without at the same time diminishing the power of the federal states so that one can lay down mandatory policy guidelines - will accelerate educational reform, remains to be seen.

In April 1970, at the end of its first period of office, the Council for Education submitted a structural plan for the education system (42a). It is a lengthy document dealing with the future of educational institutions, essentially a compromise, as was only to be expected from the composition, working methods and function of such a body, and as is amply stated in the introduction to the report. For the first time in Germany since the war, though, it provides a far-reaching proposal for reform, which, in view of the amount of discussion and advice on which it is based, ought to meet with wide support and could, at the same time, despite its tentative character, set in motion a progressive trend throughout the whole education system. In brief, the recommendations are as follows: compulsory education beginning at 5, and lasting 10 years; establishment of a leaving qualification (Abitur I) for the middle school, with the intention - and hope - that it would be obtained by most pupils; horizontal stages in the education system from elementary to further education; a Secondary Stage I concludes the basic education of all pupils, Secondary Stage II leads, with numerous variations, to Abitur II - the minimum requirement for university admission - and to initial vocational qualifications; the proposal thus aims to integrate non-vocational and vocational education. It is assumed that by 1980, 45 to 55% of the relevant age group will be attending full time the first two years of Secondary Stage II, which is non-compulsory, and that the corresponding figure will be 25 to 30% in the third year of Secondary Stage II. These rates have long since been reached in other industrialised countries, but would mean a considerable expansion of German education. Furthermore, pre-school education is to be developed as a so-called two-year Elementary Stage, the aim being to make provision on an optimal basis for about 75% of all 3 and 4 year-olds.

There are also suggestions on how to improve teacher training. This is all the more important in view of the multiplicity of teacher training programmes that exist and the desolate state of teacher training today. These threaten to nullify any new education policy, however progressive it may be. A key proposal is the provision of a university-level training for all teachers. It would basically involve study of education and the social sciences, pedagogics, with systematically integrated teaching practice. Hitherto, there have only been isolated programmes, differing in quality and status according to the type of school in which the student wishes eventually to teach. This has been an exacerbating obstacle to integrating the education system more closely. But under these new proposals, the courses would differ only in the group of subjects chosen to complement the basic course taken by all, which, as already indicated, would be rooted in the social sciences. Finally, the plan contains proposals for a reform of educational administration, where change is essential, if flexible and continuous reform is to be achieved. It also provides estimates of the money and staff needed for the recommendations to be implemented. This also distinguishes it from the earlier plans for reform, which failed not least because of obscurity as to their implications.

The potential of the plan - to open new perspectives without dogmatic commitment - at the same time indicates its weaknesses. The proposals allow for interpretation, for example, in favour of development along comprehensive lines, but equally for a preservation of the present unco-ordinated plurality of types of school (though admittedly they emphasize that this existing situation can no longer be justified). Again, one has to wait and see to what extent these generally progressive recommendations by the Council for Education remain merely a formal declaration and to what extent they permeate the educational practice of the federal states.

At the beginning of June 1970, the federal government put proposals before Parliament for the future growth of the education system, as indeed Willy Brandt had said it would in the declaration of policy he made after the elections in October 1969 (42b). The reforms it envisages for the school system basically conform with the Council for Education's recommendations, though some of its aims are more explicit, for example the commitment to try out and gradually introduce integrated comprehensives (43).

The government's programme foresees a national education plan to be produced within a year by an educational planning committee composed of members representing central government and the federal states. This is to include a commitment to specific reforms, and will set both medium-term targets and long-term goals. More immediately, the government wants programmes started to deal with particularly pressing problems such as co-ordination of educational research and curriculum development, and of individual projects such as experiments with schools (pre-schools, comprehensives and whole-day schools), the production of teaching aids and teaching programmes, studies on regional planning and on the demand for education. But not until discussions between the government and the states start will we know how far there is a consensus on specific plans by the government to co-ordinate school policy, for which alone the federal states continue to be legally responsible.

The preliminaries for concerted educational planning were finally

completed by June 1970 with an administrative agreement between the government and the federal states on the setting up of an educational planning commission. It began work at the end of July.

There are seven government representatives on it and eleven representatives of the federal states. They are to produce a national education plan within a year, with estimates of its cost. Should they actually succeed in agreeing on a practicable policy for reform, it would be the first opportunity yet for developing education in all the federal states along mutually agreed lines and for changing the federalist system from an instrument of educational immobility to one of fruitful co-operation and competition. Before this can happen, considerable problems (quite apart from difficulties over the substance of the agreement) will have to be solved. Among the greatest of these is how to finance an education programme adequate to compensate for the years of inactivity in this sector. The intention is to meet some of the cost over the next few years by placing a provisional extra levy on income tax and by raising a loan for educational expenditure. Tax rises, resort to new sources of income and a change in the order of priorities in any case seem inevitable by the mid-seventies at the latest. It is widely thought that they are urgently needed already if plans for reform are not to remain mere pipe-dreams.

CHAPTER III

MOTIVES FOR CHANGE

Since 1945 there have been many changes in the school system. As a rule they have been directed towards the extension and standardization of the system in the various federal states - for example the extension of the elementary and secondary modern school and the introduction of foreign languages in elementary schools - or modifications and elaborations of existing practices, as, for example, changes in selection procedure or the introduction of supplementary routes through the education system. Changes of this kind, directed at particularly striking malfunctions but still in no way challenging the goals of the school system and its general direction, have little connection with the term 'innovation', in the limited sense that we have given it here, however important they may be for the development of the education system.

From 1965-66 onwards, school experiments were started by a wide variety of groups; for example, by the school administration, to a large extent by those responsible for the schools themselves, by individual schools, teacher associations, parents' associations, or by individuals with a particular interest in the matter at hand. These have, by contrast, been mostly directed towards new goals, for example towards objectives which have been in the forefront of educational discussion in recent years. These include, for example, changes in the system of transfer from primary to secondary school (the transitional stage), extension of the elementary school period with the simultaneous integration of non-vocational and vocational education, the differentiation of grammar school courses, the introduction of whole-day schools and above all the introduction of comprehensive schools which incorporate most of these other less ambitious experiments. The fact that about two-thirds of the 200 or so school experiments in state schools have begun since 1960 indicates that general school reform, so much neglected since 1945, is gradually getting under way, at least in the form of experiments.

This kind of reform trend, which is independent of the official school policy of, say, the KMK or the ministries of culture in the federal states, makes it difficult to discern any general 'pressure' on the country's education policy or to describe its causes. There would be some point in talking of such pressure only if and when relatively clear education goals had been formulated, which could not be achieved with the prevailing organization of schools, and if there were readiness to transform these goals into more than verbal appeals, i.e. into concrete development plans. Such a tendency has been more noticeable since the change of government in 1969. The innovations come mainly from, or find a foothold in, local communities - with a few exceptions, such as Hessen and West Berlin. This is not least due to the fact that, at the lowest level, conflict situations derive from direct confrontation with the difficulties of school practice and the demands of those groups involved or affected. In part, it is practical and economic

necessity that are provoking policy decisions in education, such as those brought on by the need to renew school buildings or to enlarge elementary and secondary schools; both of these are often made financially viable in small towns or rural districts only be merging several schools and types of school. But neither pressures such as these, nor the failure of the school system to keep pace with the social and economic changes - a popular argument - automatically produce the necessary policy decisions, however much they underline the need for certain reforms.

It can be fairly clearly seen from the development of education policy over the last 20 years, as described above, that of the two theoretically possible alternatives - i.e. between isolated reactive changes and adaptations, on the one hand, and, on the other, long-term planning directed towards concrete goals - that of isolated change has tended to predominate. It may be that the very orientation of progressive arguments based on putative material circumstances such as "the growing need for qualified manpower" or "the changing social structure" or "a trailing position in international league-tables" has contributed to this. For these arguments have focused attention on a variety of quite different possibilities deduced from the same set of facts.

The problems that emerge from a statistical and qualitative analysis of the general school system have been raised in the first part of this study. These include the difficulties inherent in an early and more or less arbitrary choice of emphatically different school courses and careers, high drop-out rates, drastic social selection, an articulation of the school system invidiously based on a typology of human ability and on economic and functional considerations, increasing numbers in the secondary schools giving a multiplicity of different motivations confronted by a relatively one-dimensional range of school courses, with little chance of revising possibly premature decisions, and so on. The rise in relative attendance figures in secondary schools is a sign of the growing importance of the social and professional status of an education providing academic qualifications. Access to and successful completion of qualifying stages of education become all the more important, the more the completion of specific school stages becomes a formal qualification for individual professions, as is increasingly the case in West Germany.

The coupling of secondary modern and grammar school qualifications with professional eligibility - i.e. interpreting them as evidence of the capacity to occupy intermediate and leading positions in professions - is a historical quirk of German secondary education. These qualifications were originally valid only for careers in the civil service, but they soon became recognized by industry as evidence of achievement. This reinforced the strategic position of school education in society. The significance of universal education, when school results are so important as qualifications, is perhaps most evident at the 'lowest level'. Completion even of elementary school is increasingly becoming an entrance requirement for the teaching profession while, at the same time, the demand for workers with no qualifications is shrinking. On the other hand, with the growing intake in secondary schools, the proportion of elementary school pupils completing at least the elementary school course is declining.

At the same time, it is not just a question of getting more pupils

through the existing school courses. The more stringent entrance requirements set in all professions and, above all, the rapid change in the skills required in professions - whose long-term consequences can hardly be foreseen - make a well thought-out general and basic education essential, one which fosters professional mobility (44). Thus, surveys and prognoses of the demand for qualified people in specific professions are not an adequate basis for the long-term planning of course contents and of the school system, but they at least indicate gaps in the current range of school syllabuses, with their restrictive effect on the pupil's breadth of vision. This is true both of professions accessible via elementary and secondary modern school - which concentrate on relatively few traditional professions (45) - and in particular of grammar schools which prepare pupils for university entrance - and whose predominantly literary and historical approach contrasts with the growing importance of technological and scientific fields of employment. One sign of this is the shortage of qualified technologists and natural scientists that has long prevailed in industry, research and education. What has been described here in relatively abstract terms as the failure of the schools to meet the needs of a flexible economy, is strikingly evident in the discrepancy between school pupils' career aspirations and their education. Even where the career aspirations of pupils are realistic in view of their school education, they are so vague that they are likely to intensify the frustration experienced by the pupils in their subsequent careers (46). Precisely such considerations as these lie behind experiments to combine general and vocational education in a subject such as 'work and careers' (Arbeitslehre). They have led to the introduction of periods of practical experience in jobs and places of work during the last two years of compulsory schooling, and to provision of a greater variety of subjects in post-elementary education.

The effect of economic arguments on changes in the school system has, however, remained ambivalent. The conclusions drawn about school organization from this state of affairs are twofold. On the one hand, one should dismantle structural and qualitative barriers such as one-sided curricula and early vertical differentiations, which have the effect of heavily restricting the range of careers open to a pupil by the sheer fact that he enters a certain type of school. On the other hand, greater differentiation within the tripartite system and a hierarchical ladder of school-leaving certificates would achieve a better distribution of pupils and prepare them more realistically for careers and further education. Both approaches - the plea for increased flexibility in the structure of schools and in curricula, or alternatively support for reactive planning in the sense of organizational modifications within a given system - are found side by side, yet in relative isolation, in the government's report on educational planning (47). In the recommendations, too, of the Council for Education, they underlie, together with other motives, on the one hand the concept of comprehensive schools, on the other the reorganization of secondary school-leaving arrangements (48). The demand for qualified manpower has, if anything, encouraged the school of thought which favours more intensive promotion of a pupil's existing abilities. This is manifest in the widespread practice of setting aside subjects on the basis of achievement in transitional stage and comprehensive school experiments, rather than that which advocates strengthening the pupil's need for achievement, and is likely to be, at least as long as there are still untapped reserves of pupils in those social strata which have traditionally placed high value on education.

The pressure exerted by changes in the economy on the education system and the ensuing need for educational planning and rationalisation would seem, in the long run, conducive to innovation, in that analyses of the effectiveness of the education system bring institutional barriers to light and thus prepare the ground for the testing of alternative models. And here the motive of international competitiveness ultimately makes itself felt (49). However problematic global - and mainly quantitative - comparisons between the effectiveness of different education systems may be, they have nevertheless shown that the Federal Republic, though one of the largest industrial nations in the world, shows up poorly in international comparisons of expenditure on education as a proportion of gross national product, in comparisons of school attendance figures and of output of highly skilled manpower, etc.

Apart from the economic aspect of the schools' lack of modernity, the demand for equality of opportunity has been an even more important driving force for innovation. For a long time it was thought that to select on the basis of an attainment test and to provide financial subsidies constituted democratic practice, but finally even the somewhat belated German investigations into the social determinants of ability, school performance and success, as well as into the social discrimination produced by a vertical structure with its early selection, have revealed how undemocratic such social selection is. Selection on the basis of attainment emerges as strata-specific selection, not just problematic at the point of transfer from primary to differentiated secondary schools, as, by and large, was first thought to be the case (hence the introduction of the transitional stage in an attempt to reduce its impact). Social selection, on the contrary, extends through all stages of the education process from the moment the child is accepted as fit to enter primary school, through transfer to secondary school, and the completion of the course there, to university entrance. To make similar intellectual and theoretical demands of all pupils further tends to intensify social selection in that thought and achievement patterns typical of middle class socialization become a general precondition of successful school performance. Hence the problem is less one of experimenting to develop reliable selection procedures and trying to mobilize manifest reserves of able children, and more one of finding institutional measures to promote motivation, verbal skills and powers of analytical thought, instead of taking them for granted, and to compensate for any backwardness in development and attainment, instead of trying to apply negative sanctions in the form of selection.

The early separation of pupils into relatively homogeneous social groups allocated to the different types of secondary school is also being more and more questioned on wider social and political grounds. Even if the hierarchical school system reflects, rather than creates, the hierarchical structure of society, it nevertheless accentuates social inequality, and above all the social distance between strata, by the mechanism of self-recruitment of social strata through school education. Motivational studies into working-class parents' desire for school education for their children have revealed a dichotomous and affective picture, which seems to reflect the social consciousness of workers in general: the university is seen as a foreign world peopled by "them" and "rich people", which one cannot enter oneself where, if one could, one would not survive (50). So for such reasons, too, a uniform school organization is advocated to provide an area of

common experience for all social classes.

The debate on how to mobilize hitherto underprivileged groups ultimately drew attention to the wider question of how to foster talent in the present school system. Stimulated by the first results of experiments in this field and by relevant experience and thinking abroad, by investigations into the failure of certain pupils to qualify for promotion to the next higher class, by the attention which foreign research into ability is beginning to receive, there is growing doubt as to the efficiency of the present school system. For, despite all sorts of differentiation, this is still based on a division into relatively rigid types of school, and a system within the school based inflexibly on the pupil's year of intake and offering a standard syllabus equally binding for all. It thus hardly permits individual and partial lack of achievement, or special abilities, to be catered for. Such considerations as these have contributed to the conception of the school as a differentiated institution in which individualized and compensatory instruction afford maximum support to each pupil. Here, the economic arguments for the mobilization of children's talent coincide with arguments for measures to reduce inequality of opportunity. The motives - outlined above - which lie behind demands for better education for all, more efficient organization of schools and equality of opportunity, are leading to structural, curricular and technological innovations in the school system. The structural changes are mainly to do with pre-school education, measures to achieve greater differentiation, the transition from primary to secondary school and the introduction of a uniform but flexible system of comprehensive and full-day schools. The policy debate concentrated originally on organizational changes, but it has become clear from the incipient planning of comprehensive schools, if not earlier, that changes in the social and pedagogic functions of the school essentially depend on changes in course content. In other words, what is needed is a systematic development of curricula, evolved with the aid of the social sciences and amenable to rational analysis. Such curricula would be oriented to the socialising function of the school. Their efficacy must be subject to examination and revision (51).

The traditional pattern of curriculum development by the ministries of culture seems outdated. Groups of school administration officials and specialists have hitherto worked out guidelines for the syllabus, closely adhering to traditional school subjects and influenced in varying degrees by the demands of teacher associations for the specific subject and on the basis of unsubstantiated assumptions about the educative content of the various subjects and their transfer effect. The need for achieving learning goals calls for more rational procedures of curriculum revision. These, by bringing decision processes to light, will ease such revision. Equally necessary are new forms of co-operation to motivate participant groups - in this case particularly teachers - to want innovation instead of crippling them by official decrees.

Curricular changes present the most urgent and difficult problem: earlier neglect of this sphere places current school experiments under additional pressure for completion. Furthermore, curriculum research, the youngest branch of educational research, is still in its early stages. The model proposed by the Council for Education - in connection with its comprehensive school recommendations - for a pragmatic

revision of syllabuses (52) involves co-operation between teachers, specialists, administrators and representatives from outside the school system, and contacts between the schools and between the ministries of culture and the Conference of Ministers of Culture. It affords a workable compromise, providing the minimum co-ordination necessary, yet leaving enough elbow room for a whole range of innovations.

CHAPTER IV

EXAMPLES OF INNOVATIONS

The innovations dealt with in this survey have been selected to cover both the types of innovation in progress and the federal states or regions concerned. An effort has been made to select developments likely to be of increasing importance and to describe the circumstances and teething problems involved in most innovation.

1. Organizational Innovations

School transition experiments: Among the earliest attempts - indeed for a long time the only attempt - to modify the premature and rigid divisions between types of secondary school was the planning and introduction of a gradual transition from primary to secondary school. Such institutions as have been evolved for this purpose will be referred to in the rest of this report as the 'orientation stage' (Förderstufe), though their actual title varies from state to state.

The first experiments to change transfer procedures between primary school and the various secondary schools were started in 1948 in Lower Saxony as part of the post-war school development plans (53). In 1951, there were seven such experimental schools, in 1962, sixteen. The so-called differentiated middle stage extended from the 5th to the 8th school year, and in it all the pupils, who would otherwise have moved on to the various types of secondary school, were taught in a combination of core subjects and courses in which there was increasing differentiation. The motives behind it were to increase social education, to raise standards of achievement at the upper end of the primary school (i.e. the modern Hauptschule) and above all to adopt a more reliable selection process for transition to secondary school. These projects were the first to be submitted to systematic verification. They stemmed from the initiative of school and university teachers and had the firm support of the 'Deutscher Ausschuss' and the College for International Research into Pedagogics in Frankfurt. Interest was shown by the Lower Saxony ministry of culture, though the latter's support for the accompanying studies was only moderate. The first research reports on the project were published in 1963. They confirmed its success, particularly in providing a more reliable selection procedure and in that pupils' performance was on the whole better than that of children in the 'Hauptschule', without any deterioration in achievement of the more 'gifted' pupils being discernible. The results of this project caused a considerable stir in other federal states too. The 'Deutscher Ausschuss' had in fact considered a recommendation along these lines before eventually deciding to limit its transitional stage of schooling to two years. But the experiments were stopped in 1964, mainly because of pressure from the professional associations which supported the autonomy of the different existing types of school, and as a result of the KMK's inclination to support moves towards uniformity, as it had done in the 1964 Hamburg Agreement.

This historical digression affords an example of the difficulties that even demonstrably successful experiments have hitherto had to face. School experiments have, for instance, to receive prior official sanction and can thus be curtailed even despite the express wishes of parents and teachers, a state of affairs not exactly conducive to initiative on the part of teachers and schools. Often, the existing educational structures and the way they are supported by the various teacher organizations - themselves divided according to status differences - still prove to be rigid, and this is true, too, of prevailing educational and social norms. So, despite glaring deficiencies in the school system and the availability of tested alternatives, they hardly allow improvement even of the sort that their participants themselves want.

Further experiments with the transitional stage were started after recommendations by the 'Deutscher Ausschuss' in 1959 and 1962 that the transitional stage should last for two years, following four years of primary school, and that it should be for all pupils. It was to provide more reliable and equitable selection, help discover late developers and stimulate weaker pupils by putting them in the same classes as stronger ones.

Hesse has gone furthest in implementing these recommendations. It has had experiments in a similar vein since 1955. From 1960 onwards, at the instigation of its ministry of culture, special transitional stages have been introduced in the state schools and guidelines worked out for them. In 1965, such experiments existed in 37 schools; they involved 6.7% of all pupils in the 5th and 6th school year. By 1968 they covered 84 schools with about 15% of all pupils in the 5th and 6th year. In 1969, a new school law was passed there decreeing the universal introduction of the transitional stage. The transitional stage is part of the primary school, but has teachers from all three types of secondary school. In other federal states, the introduction of this kind of transitional stage is limited to isolated experiments in only a few schools. Wherever the transitional stage has been introduced on a larger scale or even made standard practice, it has been in a heavily modified form, which again departs from the original goal of educating and bringing on all pupils together. Instead, the two year transitional period (in Lower Saxony and in North Rhine-Westphalia since 1965; in Bavaria it is planned) takes place in the respective types of secondary school or solely in the grammar school, as, for example, in Hamburg (54).

To incorporate the transitional stage in the different types of secondary school is a typical example of partial implementation of innovations without corresponding alteration of the existing school system. The development and testing of a differential solution to the transitional stage problem is thereby prevented and delayed, although research into the experiments in Hesse have shown that not even its more ambitious concept of a common programme for all in the transitional stage, with its present curriculum based on communal courses and setting, can achieve the individual education and support for the pupil which is desired.

Empirical studies commissioned by the Hesse ministry of culture at 6 schools which have the transitional stage, have shown that, in general, more accurate selection is achieved and that this objective is fostered by the organizational structure of the school (55). The

proportion of pupils moving on to grammar school and secondary modern school has risen by 12%, of which the main rise (10%) was to the secondary modern school. This increase was amongst children of professional groups, but mainly amongst children of lower and middle-grade civil servants and of skilled workers. The transitional stage has thus predominantly affected the middle class, whose educational aspirations are in any case rising, while - apart from the skilled workers - it has hardly drawn at all on the untapped resources of the least educationally-minded group, the working class. The rise in the proportion of children from social strata traditionally providing the highest proportion of secondary school pupils is striking. The proportion coming from higher socio-economic groups rose from 82% to 90%.

This study shows the problems of an isolated measure such as the transitional stage, and more generally of equalizing educational opportunity by merely providing educational institutions - problems equally relevant for the organization of comprehensive schools. The rigid division between types of courses and the ensuing importance of selection in the first instance merely create an organizational problem which can be solved with comparative ease. Instead of the common courses embracing a number of subjects, which used to be the rule in Hesse, subject courses are now being introduced. To ease the transition from one course to the next, the Hesse ministry of culture has ordered the introduction of 'lift courses'.

More important than any possible structural consequences is, however, the approach to the task of fostering ability, for this ultimately determines the scope for innovation. Even among the teachers in these experimental schools, the opinion still prevails that fostering talent consists of measuring the child's level of performance and placing him in appropriate courses (56). Here, the underlying attitude that ability is a fixed quantity but merely latent, and that it only needs to be assessed by more objective measures of performance, impedes an organization in which learning potential could be created rather than assumed. In view of this, the isolated introduction of a transitional stage for pupils between the age of 10 and 12 promises only crude improvements. For this reason, too, the transitional stage has meanwhile receded somewhat into the background of Hesse's educational planning: it is now intended as a transitional stage leading to differentiated comprehensive schools, while the fostering of ability has become very much a function of the primary school and pre-school classes, where compensatory measures can be much more effective (57).

Comprehensive Schools: Experiments which bring the three traditional types of secondary school under one roof are a relatively recent phenomenon in the Federal Republic. It had, however, forerunners in the Berlin 'unitary school' (the 'Einheitsschule') between 1948 and 1951, which provided the initial 8 years of schooling, and in Lower Saxony's experiments with a differentiated middle school; it is found, though in a weaker form, even in the idea of the transitional stage. The principle behind the comprehensive school is to educate children in a differentiated system of courses, which only at a late stage lead to a choice between different specializations in the overall type of education the child is to have. The stress is on individual needs and the fostering of talents, remedial education, and compensatory education for socially underprivileged children.

There were isolated cases of comprehensive and quasi-comprehensive

school, partly in private schools (e.g. the Odenwald school) and partly in the state system, before the early 1960's, when the idea was again brought into discussions on educational reform. Since 1965, it has been an increasingly common feature of plans and experiments. Since 1961, there has been a comprehensive school (the Fritz Karsen School) in Berlin, in which 6 years of primary school are followed by two years of differentiated middle school with course and core teaching, and only then is there division into main types of syllabus leading to different kinds of qualification. Since 1960, there has also been a German-American school in Berlin, the John F. Kennedy School, which is a differentiated comprehensive school. In Hamburg, there are two similar experiments dating from 1954 and 1960. In Hesse, experiments along the same lines were started in 1954; in these, the introduction of transitional and observation stages postpones structural division into types of secondary education by at least two years, and the ensuing kinds of secondary education are at least organized as a unit within a common education policy (Schuldorf Bergstrasse since 1954, and the comprehensive schools Kirchhain from 1957, Wolfshagen from 1958 and Frankfurt-Nordweststadt from 1963) (58).

These early experiments made only a slight impact, though, on the public debate on education. They were, after all, purely local, were hardly intended as test-beds for changes in the state system, and - in so far as they involved private schools - were in any case isolated from the state system. The real impulse to try out similar kinds of school again came only via the international debate on them and the trend to go comprehensive in other West European countries with similar vertically structured school systems; the Swedish example was particularly influential. Any departures at home were, and to a large extent still are, a matter of personal initiative. In the early 1960's it was above all the Social Democrat Senator in charge of school education in Berlin, Carl-Heinz Evers, who tried to get the comprehensive school accepted by political parties and the public as more than merely a local solution. At first he had little support even in his own party. Since 1962, he has had four comprehensive schools planned in Berlin (59). Only since 1964 have such proposals met with public approval. The SPD brought the incorporation of the different types of school into one organizational unit into its official education policy (60) and the KMK expressed similar views in its 'Berlin declaration' of 1964 (61). So far, however, only Socialist-run Hesse, in its school statute of 1969, has committed itself by legislation to development along comprehensive lines (62). In the other federal states, comprehensive schools have for the time being merely the status of experimental school, at best indicative of possible future developments. The uncertainty as to future developments and the fact that the older comprehensives have not been subjected to proper experimental testing, while more recent ones are as yet only on the planning board or in their initial phase, hardly permit any assessment of the effects of such structural reforms and hence their implications for further innovations. The intention here is more to discuss problems whose relevance for innovational processes is already becoming apparent. In 1965, there were 14 schools in the Federal Republic which, in varying degrees, combined all the different types of schooling. Of these, 8 could be strictly described as comprehensives in that they provided differentiated types of schooling at least in the middle school, i.e. from the 5th to the 6th or 8th school year. The remainder merely combined several or all the main types of school under one roof, for example the Bremerhaven combined schools, which were introduced by legislation in 1949 as the standard type of

post-elementary school (63). More recently, there has been much more rapid development towards comprehensive education in the federal states.

The first states to plan and support comprehensive education were Berlin, Hamburg, Hesse and North Rhine-Westphalia - all except North Rhine-Westphalia traditionally Social Democrat areas with a relatively well-established tradition of reform.

By now, comprehensive and quasi-comprehensive schools are being planned in almost all the federal states, especially since the KMK's approval of the Council for Education's recommendation that 40 comprehensive schools be set up on an experimental basis. An exact idea of the number of comprehensive schools in existence is made difficult by differences in their nomenclature and by their relatively rapid development. In 1968-69, there were 2 integrated comprehensive schools (in existence or planned) in Baden-Würtemberg, 6 in Berlin, 1 in Bremen, 2 in Hamburg, 6 in Hesse, and 3 (with 20 planned for the period to 1971) in North Rhine-Westphalia (64). The remainder are mostly mere school centres in which several types of school are brought into a single administrative unit, but with the traditional structure of the schools remaining unaltered. Some of these school centres have been planned as an interim step towards comprehensive education, as is the case in North Rhine-Westphalia, or in Hesse, where school centres have been located mainly in rural areas as part of a scheme to extend the network of secondary schools. The development of these types of school and of the integrated comprehensive schools is often a feature of new conurbations and dormitory suburbs (as in Berlin and Frankfurt). New towns, with their still relatively fluid populations, are proving especially open to experiments, for here innovations clash least with established kinds of school and the vested interests of pressure groups. Similarly, comprehensives tend to be built when sheer practical and financial considerations make it necessary to build new schools (cf. Weinheim in Baden-Württemberg, where in addition much was done on private initiative, or North Rhine-Westphalia). In such cases, one also has a relatively flexible situation, where the retention of obsolete structures would be extremely expensive, or could be achieved only by equipping the schools inadequately. The initiative behind the introduction of comprehensive schools usually comes from the local community, except in the case of the city states and of Hesse, where the ministry of culture instigated their creation (65). In some federal states, many more applications for permission to start comprehensive projects have been submitted than the state is prepared to grant, partly because any hasty development without adequate preparation is seen as endangering the very future of comprehensive education, and partly from concern at the 'unrest' that a large number of experiments might entail. Political allegiance is not such a key factor in these decisions as it used to be only a few years ago. In 1959, for example, bishops and Catholic teacher associations vehemently rejected even the moderate proposals of the 'Deutscher Ausschuss', while today there is a comprehensive school being started on local Catholic initiative. This does not mean to say that the shortcomings of conservative school policy are not becoming evident in some federal states. In Hesse, the development of comprehensive schools has been made easier by the early creation of a network of rural school centres and by the public's support for better education. In Bavaria, however, even raising the school age to 16 and introducing a foreign language in the primary school creates considerable problems, as there is neither the money nor the staff, nor is the mainly rural population interested in obtaining better education.

Despite the unmistakable change in school policy, the importance of new school projects should not be exaggerated. Centralized schools outnumber integrated ones and the orientation stage has less often been implemented in full than introduced in a modified form of improved selection. The conflict between selection and orientation is also reflected in the internal organization of the comprehensive school. Existing plans for comprehensives are predominantly based on setting within subjects, which threatens to fix the child prematurely at his current level of attainment, thus aggravating existing inequalities of opportunity. Although equality of opportunity is one of the chief goals put forward for comprehensive schools, their hastened introduction has been motivated largely by the desire to optimise performance, a function which the traditional school system has manifestly failed to fulfil (66). Here one sees that to achieve the original pedagogic and social objectives of the comprehensive school, much more than simply local innovations within the school are required. What parents, teachers, and above all future employers in the civil service, industry and university expect of the school is traditional leaving examinations and this impedes projects whose results cannot simply be measured by such criteria. The need to prove to their critics that comprehensives can produce results no worse than the vertical school system, as measured by exam results, fosters the survival of the established types of schooling. This reflects the absence of prior research into and planning of curricula, work which at the moment has to be done by the teachers themselves. They, however, have been trained only for the traditional types of school. They are thus inevitably ill-equipped to take on the novel and complex work involved in producing new learning goals, curricula and testing procedures.

In Berlin, comprehensive school projects illustrate both the difficulties and potential of the system (67). The circumstances under which they were started were relatively favourable: a liberal senator was in charge of secondary school education, there was a group - at first admittedly somewhat small - of progressive teachers, and a so-called 'Pedagogic Centre' opened in 1965 to carry out educational research. It nevertheless soon became clear that to plan, implement and complete experimental projects such as this called for entirely novel forms of co-operation between politicians, civil servants, experts in various fields, and teachers, if such people were to serve as a base for wider-ranging decisions on educational reform. For example, the teaching staff of the projected comprehensive schools had at first to do much of the planning and prepatory work themselves in isolation from the other groups involved in planning the schools.

With the present state of curriculum research and available curricula, of teaching methods and teaching aids, and with teacher training run on a hierarchical basis, the main problem is that corresponding organizational distinctions have for the moment to be made within the comprehensive schools. At the same time more flexible planning models, open to trial and modification, are needed if the existing structural divisions within the school system are not to be reintroduced by analogous distinctions within the individual school (68). The planning and trial stages in these projects tend at the moment to be relatively isolated from each other so that those concerned are not equally aware of the problems involved, which makes mutual stimulation and correction more difficult. Even the comprehensives within the same federal state are competing against each other, and attempts to co-ordinate and plan comprehensives on a supra-regional level have so far failed. Here,

too, private initiative has made itself felt. In early 1969 a 'Society for Comprehensive Schools' (the 'Gemeinnützige Gesellschaft Gesamtschule e.V.') was set up with the object of promoting new comprehensive schools and fostering co-operation between existing ones. The recently accepted experimental programme of the Council for Education should also contribute towards better co-operation and communication.

The difficulties outlined above show how the status of experiments required to justify themselves can, in the absence of any central education policy, foster innovations, but equally how it impedes such innovation.

Differentiation in the Sixth Form: In a horizontally structured school system, another way of combining the individual opportunity permitted by an undivided school system with preparation for specialized professional and university courses is that proposed by Professor Hartmut von Hentig. He suggested the setting up of colleges (69a) which would replace the present sixth form of the comprehensive school and possibly the first one or two years of subsequent professional or university courses. His proposal assumes 10 years of schooling at a differentiated comprehensive in which the general education phase of the secondary school is completed. After this the pupil can opt for any of the colleges; only then does specialization begin. The motivation behind this scheme derives from the problems described in the section on comprehensive schools, i.e. of simultaneously combining a basic general education, common to all, with preparation for substantially differing terminal qualifications, according to the vocational goals and subject preferences of pupils. His proposals are also directed at the hitherto unsolved problem of transition from secondary school to employment or to university; the latter requires a degree of specialization which the secondary school offering a general education cannot provide. The separation from the basic secondary school of a stage in which pupils are prepared for subsequent specialization is designed to ensure the necessary variety, otherwise attainable only in extremely large and centralized comprehensive schools. The scheme is intended, above all, to permit a freedom of choice hitherto prevented by too early specialization.

One type of college von Hentig proposes is the sixth form college (the 'Oberstufenkolleg'), whose function it is to prepare pupils over a period of 4 years for specialized university courses. A trial period is being run in connection with the new university at Bielefeld under von Hentig's own direction. The Council for Education, too, has taken up the sixth form college in its experimental programme. Sixth form colleges combine the last three years of secondary school with the first year of the university course. They are intended to enable pupils to choose at an early stage the subjects they want to study at university and at the same time to enable early revision of this choice. They would thus fulfil an orientation and a specialization function which in existing universities is left entirely to individual choice. The orientation function would be achieved by the provision of a much wider range of subjects in the curriculum than is offered by the grammar schools; this breadth of syllabus is intended to permit the student to embark on the first-year course in whatever discipline he may wish. The proposal provides for 36 optional subjects (of which two must be chosen) and 4-5 compulsory subjects in a college comprising 80 staff and 800 students. Half the staff are to be drawn from the university. The inception of the sixth form colleges in Bielefeld is planned in two stages, the first

of which is limited provisionally to about half this number of students, with a similar restriction in the number of subjects offered. During its trial stage, the college will be fully integrated into the university. The plan for such colleges keeps more consistently than do existing comprehensive projects to the assumption of an undivided secondary school providing the final stage of common education for all, in which career choice is not prejudiced by premature division into different types of education. Sixth form colleges could also offer one of the solutions being canvassed for university reform by affording a basic undergraduate course, while the university itself would provide only more advanced courses. To start trying out sixth form colleges just now as preparation for university education has its problems. It is symptomatic, though, of a preoccupation with education geared to the university and at the expense of other - to say the least - equally neglected kinds of education, for example pre-vocational education. The efficacy of such a college can only be assessed at all accurately when it is backed up by a minimum school-leaving age of 16. Meanwhile, there is a danger that the idea will be inverted and the sixth form colleges of this kind will be established as academically oriented elitist schools, fulfilling a function which the grammar schools no longer can. It is also too early to judge how far differentiation within the preceding part of secondary education can be achieved without different terminal qualifications, i.e. to what extent a common terminal qualification can be introduced which affords access, not merely on paper but in practice, to the full range of subsequent training and education.

One can, however, foresee that projects with a more or less integrated type of sixth form following on 10 years of largely uniform basic education will flourish. This will ease transition to the more academic university education and in general a co-ordinated system of different qualifications is to be set up for transfer to the whole range of tertiary education and the various occupations.

The urgency of such wide-ranging reform in the sixth form is evident from the inadequate, purely local efforts made so far. A case in point is the specialized sixth form college (Fachoberschule) set up in 1968 under an agreement between the government and the federal states. This college caters for the 11th and 12th school grades and allows pupils to concentrate on specific areas of study, e.g. engineering and business, and leads to one type of qualification for admission to high school, the so-called 'Fachschulreife', which gains the student admission to a technical high school (69b). This supplements the traditional routes to technical high school via the secondary modern school with a period of practical experience or via the upper elementary school, an apprenticeship and a vocational training college, so that there is now a wide range of alternatives. Some school leavers from the upper elementary school can now complete a tenth year of schooling and go straight on to a technical high school. A partial reform such as this shows how joint measures can be carried out in the school system as it stands, despite 'cultural federalism'. In this case they were the result, though, of considerable pressure by students and staff in the engineering colleges and advanced technical colleges to raise the quality and status of this sector of education. The proposed classification of technical staff put forward by the EEC Commission did not, for example, recognise graduates of German engineering schools as engineers, as 12 years at school and completion of a 4-year-course in engineering at university level were required, and the length and status of the course

in Germany did not meet these requirements. The new arrangement between the federal states is, however, symptomatic of previous school policy in that new needs are answered by the creation of yet further types of school rather than by more thorough-going reform. Instead of adding yet another variant to the existing multiplicity of schools, the co-ordination and phasing out of courses already being offered might have been tackled more systematically.

The former Berlin Senator for Education, C.H. Evers, has put forward a scheme for a 'New Grammar School' which starts from a similar point of departure. The school would follow on 10 years of compulsory education and would cater for the two subsequent years, i.e. for all 17 to 18-year-old pupils. The 'New Grammar School' would comprise three equivalent organizational variants: firstly, non-vocational and vocational courses in a programme of full-time education; secondly, half in-school education, half on-site vocational training; thirdly, one-third in-school education and two-thirds on-site vocational training (70). There would be a variety of compulsory subjects for all pupils, whether full or part-time, which would be taught in undifferentiated classes. In addition, there would be a wide range of special subjects and combinations of subjects with corresponding terminal qualifications. Theoretically, such a scheme would permit pupils to attain both their first vocational qualifications and academic ones - either as alternatives or simultaneously. The pupil would be able to choose a career and the education he wishes later than has hitherto been the case, and would have a chance to revise his decision.

A move in this direction is indicated by the recommendations by the Council for Education for reshaping the secondary school system with a Secondary Stage I, extending to one 10th year at school, and a differentiated Secondary Stage II, leading to the Abitur II and to initial career qualifications. With these proposals, both the academically oriented sixth form would be further differentiated, and the present tangle of vocational and non-vocational schooling incorporated in an ordered system as part of the restructuring of the sixth form (70). In view of the sharp division there has been between vocational and non-vocational education and the continuing absence of courses suitable for an integrated school offering the pupil a variety of options, intensive research and trials are needed if a project of this sort is not to result in a merely nominal combination of various types of school.

To judge from similar experiences in other countries, it seems doubtful to what extent the various types of institution proposed, with their different types of course, can actually be set up with "equivalent" status.

The number of changes in the whole education system that such projects demand explain why, initially, as in Bielefeld, there is a tendency to concentrate on the academic sixth form, especially as the failure to carry out university reforms over the last few decades has made a revision of university admissions procedure overdue.

There are plans for the first step towards a partial integration of vocational and non-vocational education in the sixth form in North Rhine-Westphalia. Thirty sixth-form colleges are to be set up there by 1975, combining the academic sixth form, the new technical sixth form, the 'alternative route' (zweiter Bildungsweg), the special institutes for obtaining university entrance qualifications, and evening school.

The mere existence of such plans suggests that the idea of a comprehensive, highly differentiated sixth form, no longer solely oriented to the university, is gradually gaining ground.

Pre-school Education: Problems of pre-school education are among the topics that have featured prominently in the debate on school reform in recent years. Some three main approaches are evident. The first involves a gradual transition from family to school to reduce the abruptness of the jump from the family environment to the relatively rigid environment of the classroom. A second approach is based on recent findings in the psychology of learning, and aims at the early provision of support for especially gifted children, mainly by writing and reading programmes. A third approach starts from the assumption that attempts to compensate for relative social deprivation are more likely to be effective the earlier they start.

Existing provision for the pre-school phase is largely restricted to kindergartens, which scarcely prepare their pupils for primary school, and cater for on average only 30% of the 3-6 year-olds. There are also a small number of so-called school kindergartens which accept 'educationally sub-normal' children who have reached school age. As it has meanwhile been proved that even 'educational normality' varies with social class, i.e. that inequality of opportunity starts even before children are accepted or not into school, the last of these three approaches becomes all the more important. Attempts to introduce compulsory pre-school education from the age of 3 have so far failed partly because of the argument that it would further encourage disruption of the family, an argument with political and economic overtones which is still put forward to defend vested interests. Pre-school education will have to be compulsory, though, if the institutions provided are not to be used mainly by parents traditionally well-disposed towards education, as opposed to those of children relatively underprivileged in their family environment. The most that can be expected in the foreseeable future is the introduction of pre-school classes for 5-year-olds; this has already been planned and started in Hesse, Berlin and Lower Saxony. There are as yet no plans for the general introduction of pre-school classes in the Federal Republic, though the possibility is being discussed.

Hesse was the first state in the Federal Republic to start systematic trials with pre-school classes. In 1970, there were 90 pre-school classes in the state with 1,371 pupils. As part of the preparations for the new Schools Act, passed in early 1969, experimental schools with an intake of five-year-olds were made a key element in the overall plan for reform (71). For the moment these pre-school classes are on trial and are voluntary for both the parents and schools concerned, but an effort was made to appeal also to parents with children in special need of compensatory education. The aims of the projects are to develop methods of providing compensatory education for socially underprivileged children, to try out flexible forms of school entrance and curricular differentiation potentially appropriate to later comprehensive school work. By way of preparation, seminars for teachers were organized and, above all, French and English experience (with the Ecoles Maternelles and Infant School) drawn on. A teacher and a trained kindergarten worker were together responsible for each pre-school class. This staffing combination is also being discussed and meeting with praise elsewhere, but it frequently leads to difficulties in that two different ministries are responsible. Kindergartens come as a rule

under the aegis of the ministry of social welfare, so that here again one sees the need for a reorganization of the administration of education. A combination of playing and learning is used (for example learning to read, where the child wishes it) to some extent with the help of teaching machines, in an attempt to prepare the child gradually for school. The experiments with early admission to school are being kept under review by the German Institute for International Pedagogic Research in Frankfurt.

Individual projects have also been started in various places elsewhere in the Federal Republic (in Hannover, Munich, Giessen and Duisburg) on the initiative of educationalists, psychologists and school administrators; in most cases they involve trying to teach reading and writing to 3-5 year-olds. These projects are mainly directed at exploiting children's intellectual capacity early on; they aim to show that flexible school entrance is necessary and would be beneficial for the progress of early developers. The corresponding reading programmes developed by Professor W. Correll of Giessen and H.R. Lückert of Munich, based on American programmes and experiments, are among the most well-known (72).

A more extensive pre-school programme is being conducted by the John F. Kennedy School in Berlin. The special status of this school as a German-American comprehensive provided conditions not afforded to the same extent elsewhere. A recent publication about the programme, produced on private initiative, has made the experience gained accessible to a wider public (73). By contrast with the otherwise prevalent limitation to reading and writing, this is a flexible programme ranging from 'playway' experience of social interaction to an introduction, also by means of games, to scientific and mathematical concepts. The lively echo that this excellently illustrated report has found in the Federal Republic should also have an impact on pre-school education.

A major difficulty in the systematic planning and organization of pre-school institutions is the lack of basic research into environmental effects on the development of young children and into the mechanisms of social deprivation. Compensatory education can thus for the moment be little more than trial and error. In fact, discussion as to what should be understood by compensatory education has only just begun. Unreflected orientation to middle-class behaviour and norms is seen by left-wing groups as increasingly problematic; on the other hand, there is a lack of detailed alternatives which are not merely confined to seeing the intellectual headstart of middle-class children eradicated.

2. <u>The Development of New Curricula</u>

With the creation of new kinds of school, particularly comprehensives, which essentially aim to give school education a new meaning, it finally became clear that a central aspect of educational planning, namely curriculum development and corresponding research, had been neglected. For years, the preoccupation had been with structural problems: into the 1960's the main debate was, for example, over denominational schools and rural school centres, then came the controversy over divided secondary education and comprehensives. Hence, the need to adapt curricula to changed circumstances was ignored; there was talk rather than action. The planning of comprehensive schools confirmed what a few educationalists (74) had been stressing for years and what has since emerged as the main requirement in all kinds of education:

that existing plans for reform - they are mainly quantitative, concerned merely with teaching techniques or politically motivated - remain inadequate without thorough revision of educational objectives and course contents.

In specific terms of planning comprehensives, this again means that the length of common education, the nature and timing of differentiation within the school, and the arrangement of terminal qualifications cannot be decided by purely administrative considerations. The question of the optimal grouping of pupils - whether by setting or not and in what subjects - which has also cropped up in the Federal Republic, cannot be answered until learning goals suitable for all pupils have been determined. The dilemma is most apparent in the subtle organizational variations in comprehensive schools, which are mostly just modifications of the existing curricula found in the tripartite system - although these have been recognised as being outdated not only in being tripartite but in their course contents.

The idea of some kind of 'popular' education for the broad mass of pupils, which for decades dominated the primary school, has finally been discredited. But it is still not clear what the widespread demand for 'raising the general level of education' might mean in terms of concrete learning goals and course contents. The traditional orientation of grammar schools towards subsequent university education has become equally suspect, both as to its efficiency and because of its exclusiveness. In addition, there is confusion over what precisely a proper preparation for university should be, and what combination of general education and prevocational specialization is desirable. Answers to these questions are a prerequisite to planned differentiation in secondary education.

In recent years, there has been no lack of new ideas and changes in teaching methods. They have, though, generally involved the mere transposition of course contents, the introduction of new subjects or fields of study (e.g. careers education) and the rethinking of individual stages in school education - in particular the final year of elementary school - or piecemeal introduction of new educational techniques (in each case isolated measures resulting, at the most, in local improvements).

This situation largely stems from the traditional way in which course contents are determined in Germany and from the corresponding state of research. Educational research has so far kept mainly to theoretical and historical analysis of syllabuses. Decisions on course contents and objectives were deemed not to be the subject of rational analysis, and their delegation to the political arena conformed with the traditional practice of statutorily prescribing curricula to the schools - or failing that, of presenting them with corresponding guidelines. The syllabus itself tended to be an accumulation of 'successful' courses and new subjects, of which the latter reflected shifts in the desires of established social groups: they did not emanate from consistent and substantiated decisions on wider educational priorities.

There was no empirical curriculum research. This has begun only in the last few years. So far, it has consisted of methodological studies which have, on the whole, had hardly any effect on the everyday practice of curriculum development. This will be dealt with briefly in another section. There is, as yet, no institution exclusively

devoted to curriculum research and development, a situation which contributes to the fragmentary nature of the work done to date; the projects depend on the chance interests of the research worker and the financial resources of the individual university department.

The sudden momentum which education policy has caught in the last 3-4 years has led to discussion on school structure giving way to the subject of 'curriculum planning', and has drawn attention to the need for more extensive planning of - and expenditure on - curricula. A short while ago, the KMK decided to set up a federal states' curriculum institute, which, besides doing research, will presumably be mainly concerned with developing curricula. Whether this project will be realized, though, remains for the moment uncertain.

It is possible that curriculum centres will also be set up in the individual states. This would be either in addition to or instead of a central institute, whose composition, approach and function is to be discussed by a working group on which a representative of the central government will be invited to serve. There are thus signs, vague though they may be, that the fragmentary attempts at reform we have seen in the past will be fused into a more marked co-operation both between federal states and with central government; a change long overdue. Similarly, it is to be hoped that curriculum research and curriculum planning in the Federal Republic, which by comparison with other countries, have been relatively late in starting, will be improved and speeded up as the result of international projects and experience. An international workshop on 'The Nature of the Curriculum for the Eighties and Onwards' took place in the Federal Republic in July 1970 on the initiative of the Centre for Educational Research and Innovation, and was attended by, amongst others, representatives of the ministries of culture of some of the federal states, and members of the Ministry of Education and Science in Bonn. It provided an initial opportunity for this kind of contact.

Apart from these plans for the future, there are already various local projects to try out new forms of curriculum planning which depart from the paternalistic principle of state prescription of contents, and attempts are being made to achieve direct and practical co-operation between experts, teachers and educational administrators.

An example of such work is in Hesse, where, as part of its systematic planning of school reform, revision of curricula has been given a central place in the so-called internal reform of schools. Since 1967, Hesse has planned comprehensive schools and developed new curricula side by side. Basic principles of planning and deciding learning goals were evolved in the workshop conferences by representatives from research institutes (e.g. the Institute for Educational Research in Berlin and the German International Institute for Pedagogic Research in Frankfurt), research workers, teachers and educational administrators. The initial aim was to set up new curricula for the middle school, i.e. from the 5th to 10th year of schooling. These curricula are intended both for the new comprehensives and the respective classes in the traditional secondary schools. They thus provide a core for the reform of the entire school system. The novel element (for German education) in this approach is that it starts out not so much from a given set of course contents but from learning goals which are then operationalized, and in the attempt to provide substantiated data on the resources and methods to be used to achieve these goals; at the

same time, criteria are set by which the results can be tested (75).

Three commissions - one for languages, one for the natural sciences and one embracing the social sciences, technology, the arts and sport - tried to work out appropriate learning goals. Immense difficulties emerged in even such a pragmatic approach - difficulties caused by the lack of elementary research and workable models for policy formation on the one hand, and of time, on the other. To help find general learning goals, three possibilities were played through.

(a) The derivation of learning goals from the kind of normative aim found in the constitutions and manifestos of a wide variety of social groups, and implicit in contemporary social science literature.

(b) The analysis of field situations, an approach which the Institute for Educational Research has tried to develop. An attempt is made to determine typical social situations and then to ask what qualifications are required to meet them. From the qualifications required, appropriate course contents are deduced.

(c) The analysis of teaching goals from such existing material as teaching plans, pedagogic literature, exam requirements, etc., and from criticism of prevailing curricula.

From a theoretical point of view, it is hardly surprising - though this is of small comfort to school practitioners - that the three approaches could hardly achieve consensus from scratch over learning goals, or even a relatively clear initial model. Probably the most serious problems are that of finding evaluation criteria, especially if the pupil's emancipation is to be paramount, and that of ascertaining instrumental ambivalence in course contents. The thoroughly different normative assumptions covered by the first approach cannot unequivocably be combined. And with the field situation approach - where in addition one has the problem of selection - it is no straightforward matter to derive learning goals whose attainment offers safeguards against eventual abuses designed to justify the status quo.

More important, probably, than these difficulties is the re-thinking that such planning can stimulate amongst all who are directly or indirectly involved with schools, and this is an avowed goal of the Hesse reform planning. The naturally assumed 'educational content' of certain subjects is fundamentally questioned from the vantage point of specific professional and life situations. The structure of the curriculum is no longer determined by linear paths through the education system, but built up round subject areas. The current notion that the comprehensive school should be basically oriented towards performance may at least be modified by conscious reflection on prevailing patterns of behaviour and the knowledge available, and by the application of recent research into aptitude and learning theory.

Such a model for co-operation over curriculum development offers a realistic means of meeting the current demand for permanent reform with the support of the teachers themselves, especially as the main problems at present do not stem solely from the lack of basic research but equally from the cleft in people's thinking between theory and practice.

3. Educational Technology

Discussion and trial of new educational techniques in the Federal Republic really began in 1963 when a first, privately initiated symposium on teaching machines and an international conference on 'Programmed Instruction and Teaching Machines' took place, the latter in Berlin (76). The fascination exerted by the new teaching media initially extended far beyond the chance to rationalize the teaching process. People hoped machines, language laboratories and educational television would present a solution to virtually all problems from the teacher shortage to personalization of the learning situation, from a more just assessment of attainment to a teaching atmosphere free of tensions between teacher and pupils. The critics of this new approach, imported from America, protested at first all the more vehemently against its 'depersonalization' of teaching.

The argument has meanwhile subsided, not least because of the sobering realization that the most practical teaching machines are worthless without appropriate teaching programmes, and that the creation of programmes, with the necessary definition of learning goals, resurrects the whole dilemma of curriculum planning.

There is hardly any serious discussion these days as to the use of and necessity for more rational procedures in structuring and testing the learning process. At present, the use of these materials and media in the schools is but slight compared with their use in industrial training centres (e.g. by IBM).

The existing programmes for non-vocational schools consist mainly of introductory reading programmes, mathematics and the natural sciences. At first, they were chiefly used as crash courses or supplementary material, to compensate for the bottle-necks caused by the teacher shortage in these subjects (77). Their use in pre-school projects has already been indicated. Special programmes on the theory of aggregates are in demand, for in some schools and federal states the conversion to modern mathematics teaching brought to light the inadequate training of teachers. Here some school administrations, such as that in Hamburg, have taken the initiative in introducing instructional programmes in schools and for teachers' refresher courses. Similar plans have been aired in Berlin. Questionnaires sponsored by the ministries of culture in Baden-Württemberg and Bavaria on the use of instructional programmes in the classroom showed a relatively high percentage of schools working with such media. Most were used, though to produce mere fragments of instructional programmes either for crash courses or for the sporadic use of ready-made programmes (78).

In 1967, in Baden-Württemberg, the grammar schools led the field with 16% using instructional programmes. In Bavaria, the majority of grammar schools already use teaching programmes, mainly for mathematics and Latin. In North Rhine-Westphalia there were 160 schools in 1969 using programmed instruction in a wide range of subjects. According to a survey made by the Association for the Promotion of Cybernetics in Research and Teaching and the Pedagogic High School in Berlin, about 25% of all grammar schools and 12% of all upper elementary schools in the Federal Republic and West Berlin are currently using teaching programmes, most of them in book form. The most common are mathematics programmes, followed by language programmes.

The most common use of instructional programmes is as purveyors of information. Their use as a direct teaching instrument, i.e. in the combined task of testing the initial behaviour of the pupil by presenting subject matter and evaluating the learning process, is admittedly being tried out in many individual schools, but for the time being such efforts are limited by the lack of adequate analysis of learning goals and pupil behaviour. Relevant work is being planned by K.H. Flechsig at the University of Constance, using criteria referenced tests based on the work of R. Glaser at the Learning Research and Development Center in Pittsburgh.

Publishing houses, especially the large school publishers, have so far played an important role in initiating programmes. The available textbooks, undifferentiated and catering for specific types of school, had been increasingly criticised and were already being frequently replaced by home-made teaching material. The publishers' supply of programmes was not at first in response to any express need on the part of schools or ministries of culture; this simply did not exist, partly because of the lack of provision in the education budget for the (costly) trial of translated foreign programmes or the creation of new ones. The programmes were written mainly by authors of existing school textbooks and were untested or inadequately tested, which made their use in the classroom even more difficult. As there is still no definate allocation of public funds for the development of high-quality long-term programmes, the publishers tend to aim their programmes less at the schools than at the parents and teachers, so that they have at hand the means of providing children with supplementary out-of-school instruction and of introducing them to new subjects.

Apart from mathematics programmes, language laboratories present the most widespread use of the media. In the theoretical discussions on these media, the potential of language laboratories for personal teaching is frequently pointed out, as is their suitability for compensatory education, especially in language teaching.

The use of language programmes is spreading, notably in Bavaria, where in 1969, on the initiative of the ministry of culture, a new computer unit was installed; by means of telephone and special apparatus it can direct and test the work of pupils simultaneously in 30 schools. Instead of the customary yes/no or multiple choice answers, it makes possible a dialogue. A number of programmes are available - either normal ones or special ones for pupils whose performance is either unusually high or low.

Of the new media, television for schools is very likely to spread in the near future. School broadcasts on television started to play an important role in the schools soon after the war. They were originally a substitute for textbooks which were either missing or not fit for use. The programmes, though relatively good in themselves, were insufficient and too little integrated into the teaching schedule of the schools. What is new today is the attempt to use wireless and television strategically and as an integral part of the teaching programme.

Bavaria was the first state in the Federal Republic to use television programmes continuously. In 1964, it started a scheme in which the ministry of culture, local authorities and the Bavarian Broadcasting Service worked hand in hand and shared costs. In the meantime, about 80% of all schools have been equipped with receivers. The Bavarian

Broadcasting Service was also the first broadcasting service to provide a permanent and varied programme of television for schools. In this case, a medium has been developed so that it can support and accelerate the urgent and difficult work involved in extending the network of schools in a predominantly rural environment.

The setting up of a so-called 'tele-college' (Telekolleg) in Bavaria in 1967 was of major importance. It was set up on the initiative of a Bavarian television institute and its status has since been established by a formal agreement with the Bavarian Broadcasting Service. It uses a combination of television programmes, accompanying material and weekly seminars organized by the ministry of culture. The entire teaching programme of the initial vocational training schools is broadcast, and with it the chance of gaining the entrance qualification for technical college. The fees are low. Successful participants on the courses (3 courses in 2½ years) receive state certificates. The tele-college was preceded by a series of studies on the career requirements and interests of the population, the economic need for skilled manpower, the extent of existing vocational courses, access to them, the efficacy of new media, etc. The vocational training school was found to be particularly suitable; it offers upper elementary school ('Hauptschule') leavers generally with two years of vocationally oriented evening courses followed by a year's full-time instruction leading to middle-school terminal qualifications, but the opportunities it provides are in practice limited by the sparseness of the school network in Bavaria (79). The tele-college has so far been limited to vocational education, but should, in view of its success, add momentum to the use of television programmes in teaching. Negotiations have been started with other federal states wishing to use recordings of these programmes and some agreements have already been concluded.

Since the end of 1969, the North Rhine-Westphalia ministry of culture and the West German Broadcasting Service have been planning the use of television with accompanying printed material. These broadcasts are initially intended to fill the gaps arising from teacher shortages, for example with the extension of the upper elementary school and the introduction of new subjects such as economics and careers education. The majority of schools and teacher training centres are already equipped with receivers.

Early in 1970, television for schools is also to be tried out in Berlin. Initially, programmes made elsewhere are to be used. Again, the broadcasts are mainly for new subjects or subjects where there is a shortage of teachers, e.g. careers education, the natural sciences, and possibly politics and sex education.

From 1971 onwards, three south German television companies are to produce jointly what in the first instance will be programmes for the new mathematics, there being an acute need for teachers of this subject to become better informed. The companies will be working in conjunction with the Institute for Films and Pictures in Munich.

Apart from the recent projects in Bavaria, experiments with computer-assisted instruction in schools have so far been conducted mainly in Berlin, this on the initiative of the Pedagogic High School's Institute for Cybernetics. These experiments are, however, as yet fairly modest, in that the computer's potential for providing a flexible system of guidance, testing and individualization of the teaching

process is barely being tapped. The programmes offer little more than technical refinement in carrying out mechanical exercises. Computer units are partly being used to rationalize question-setting and the evaluation of pupils' answers, as is being done, for example, in an Erlangen grammar school. In North Rhine-Westphalia, investigations into and experiments on computer-assisted programming are currently under way, mainly on the information flow during teaching. In some towns, for example Cologne, federal state institutes have already been set up to provide appropriate further training for teachers. The Aix-la-Chapelle University Institute of Education has organized a trial programme in thirteen towns with pupils in various types of school on the calculation of interest rates, with the co-operation of a large electronic engineering firm. The pupils' work was translated into computer language and the computer carried out assessment and analysis of their work, providing comparisons between results in the various classes. This initial project was financed by the Federation of Savings Banks (Arbeitsgemeinschaft der Sparkassen); its continuation is still uncertain, as the ministry of culture's entire budget for programmed instruction only amounts to roughly the cost of this project alone. The limited funds currently available to the ministries of culture are, in fact, a main cause of the as yet but slight interest shown in using computer programmes for teaching. Their potential is admittedly exaggerated in view of the overcrowding of classrooms and the growing shortage of teachers, but there is widespread scepticism as to the advantage of bringing technical refinement to outdated educational structures. The expense of developing programmes for differentiated and individualized computer-controlled instruction is at the moment too great for the federal states' budgets, nor is industry sufficiently willing to fill the breach.

Computers are, of course, being used increasingly for administrative functions, especially for compiling timetables, which increasing differentiation of the teaching programme has made one of the most time-consuming tasks confronting the teacher. A progressive education officer in Hannover has instigated a programme of this kind. In North Rhine-Westphalia, the ministry of culture, the Technical Academy in Wuppertal and teachers have co-operated in a similar way to produce timetables for all the types of school; these were due to be ready in the autumn of 1969. They should be of special benefit to the comprehensive schools, whose teachers are generally shouldering an excessive workload with their new roles in organization and planning.

Like the creation of new school structures itself, the incipient incursion of educational technology into the traditional single-teacher classroom atmosphere has shown up the limits of the previously unsystematic and unco-ordinated innovations. Further differentiation in the teaching process seems scarcely possible without the use of mechanical media for purveying information, for teaching, testing and mathematical functions, but the lack of curriculum research and development at the moment impedes the calculated use of such teaching aids.

The ommissions of the last 20 years mean that in virtually all areas the investment needed is such that it can be met, if at all, only by co-operation between all the federal states with the participation of the federal government. The broadcasting companies, for example, being public corporations, cannot simply put on programmes exclusively for a specifically limited public; generally, special arrangements have to be made with the federal states, as has happened in the case of

Bavaria. The broadcasts would urgently need some form of co-ordination and quality control. A suitable body would be the KMK, which has already set up a committee for school television, but its position as a co-operative organ of the federal states gives it doubtful credentials for the job. The need for co-operation with private publishers also presents a danger of monopoly and hence of jeopardizing any such quality control itself.

A 'Society for the Promotion and Application of a Scientific Approach to Teaching and Learning Techniques' (Arbeitskreis zur Förderung und Pflege wissenschaftlicher Methoden des Lehrens und Lernens e.V.), founded by the Volkswagen Foundation in 1964, has so far had little influence on the insular way in which educational technology has developed. In 1968, a working party, set up by this society, on the construction and testing of programmes at least published some 'Guidelines for the Testing of Teaching Programmes', which were prepared with the help of members of the KMK committee on schools (80). This gives the schools and school administrators an instrument for assessing existing programmes, the producers of which tend to provide inadequate information on programme contents and their structure, target population, test results, etc.

The same society also finances larger studies on programmed instruction. A large project is being developed on mathematics teaching for pupils in their seventh year at school. It is to examine problems met in using programmed instruction as an integral part of the whole teaching process. A special series of publications is to report continuously on research promoted by the society.

The cost of such developments and the co-ordination they entail necessitate closer co-operation between the ministries of culture, publishers of textbooks, research institutes, colleges of education and schools. An overall revision of the exam system is needed. So are more uniform conditions for the approval of teaching aids in the various federal states. There need to be government subsidies for the producers of teaching aids if this sector is not to be left to the commercial interests of private industry. Co-operative development of alternative programmes is necessary if the emergent awareness of the need for greater freedom in teaching is not in turn to fall victim to an excessively centralized concentration of effort dictated by shortage of funds. Here, too, there are signs of progress, at least at the federal state level, in that Hesse is trying to find new forms of co-operation between producers of teaching aids and local authorities; the latter have hitherto been responsible for school buildings and staff, but not for the determination of curricula. As the initiative behind the erection of comprehensive schools came in the first place largely from the local authorities, co-operation such as this, not adhering rigidly to traditional areas of competence, would seem to be of major significance.

4. School Experiments and Educational Research

School experiments and minor innovations have so far been accompanied only to a small extent by systematic investigation and evaluation (81). This is a result mainly of the limited capacity of the few and generally fairly recent research institutes and of the present state of empirical research into school education, which is only just beginning. Empirical social research was interrupted in 1933 and was only somewhat laboriously resumed after 1945. The traditional hostility of German

educational philosophy towards empirical approaches for a long time sheltered the school and education from rational analysis: they were seen as phenomena which could not be objectified (82). The reform plans from before 1960 failed not least because pedagogic research was used only marginally in their conception, and to an extent there were only crude data on the actual effectiveness of schools. The official school statistics give merely a global picture of the quantities involved and are of hardly any use for detailed analyses. Only since the early 1960's have, for example, a moderate number of socio-statistical projects been carried out, giving insights into the degree of social selectivity in the schools, isolating strategic points in the school system and revealing the social mechanism behind selection.

There is a large backlog of neglected basic research, though basic research can at first be used only indirectly for innovations and otherwise only for long-term results. In addition, accompanying research is impeded by the lack of a methodology. Since, for example, objective testing has barely been used in schools, appropriate tools have to be developed for each study conducted. So do, in fact, standard observation procedures, attitude scales, etc., a situation which impedes both basic research and direct studies of the school.

According to the last survey by the 'Bureau for the Co-ordination of Documentation on Social Science Research' (Koordinierungsstelle für die Dokumentation sozialwissenschaftlicher Forschung), at the end of 1968, there was a wealth of studies under way. The bulk of the projects relevent to school education were on the regional and social incidence of educational opportunity, socio-economic variations in selection mechanisms and the demand for education, factors affecting school performance, achievement and non-achievement, socialization processes according to social class, and curriculum research; the latter are largely confined, though, to studies of specific teaching methods and experiments. A lesser number of these current studies are control studies of projects in the schools, e.g. the transitional stage and comprehensive education. The difficulty of seeing that this research actually affects day-to-day practice in the schools arises from their fragmentary nature and their being scattered over a multiplicity of university departments, pedagogic high-schools, special institutes, etc. The meagre funds these establishments have, means that the studies are often one-man affairs of very limited scope. It has meanwhile dawned that educational research, like other things, costs money, but there is little sign that the lesson has been properly learnt, particularly at the universities, despite their insistence on the unity of teaching and research. Research in this field, even within one university, tends to be unco-ordinated, the results frequently furnishing little more than a collection of statistical data.

The novel term 'educational research' refers to a discipline still in its infancy. It aims at integrating certain hitherto scattered and institutionally divided university disciplines, such as educational psychology, sociology and pedagogics, each previously concerned with partial aspects of education.

Of the institutions best staffed and equipped for this new area of research, three are noteworthy. The oldest is the German Institute for International Pedagogic Research in Frankfurt (DIIPF). It was founded in 1951 and was for a long time the only establishment of its kind. In 1964, it acquired the status of an inter-state research institute and

accordingly became financed by the federal states. From the start, its emphasis was on empirical research in pedagogics. But besides the traditional areas in this field, the legal, administrative and economic aspects of education were also covered. The DIIPF conducted, for example, studies on some of the early transitional stage projects in Lower Saxony and Hesse and is currently involved in the planning and surveillance of comprehensive experiments in Hesse, for example on objective measures of performance.

In 1963, the Institute for Educational Research (If.B) (83) was set up in Berlin under the auspices of the Max Planck Society, an institution independent of sponsors and government intervention, and whose main activity is basic research. The If.B. specializes in interdisciplinary approaches to the manifold aspects of the education system and its future development. It does methodological work in which specialists in pedagogics, philologists, psychologists, sociologists, lawyers and economists also work as teams. The emphasis placed on basic research and the restriction of activities necessitated by the mass of work needing to be done have led to the provisional exclusion of all research directly oriented towards educational practice. Control studies of school projects and the development and testing of teaching media are, for example, not part of the current research programme.

Finally, there is the Pedagogic Centre, also in Berlin. Founded in 1965, it was originally intended to foster the application of research findings to school practice and to study the working of school projects in Berlin, particularly of comprehensive schools.

The central problem in integrating research and educational practice at the moment is that the unexpected but overdue new impetus in education policy and the numerous innovations now starting are clashing with the need to remedy the backlog of basic research, statistics and work on survey methods that are needed. The by all means necessary propaganda for policy decisions in education to be based on proper research and their effects systematically tested, which we have seen in the last few years, has increased the demand for research findings to a quite unrealistic degree. To think research can be a substitute for political decisions is a popular misconception, which can easily lead to technocratic forms of planning or result in a fortress being built against all rational analysis of educational policy-making. On the other hand, policy decisions are now being taken - e.g. over comprehensive education, new curricula and media - that will influence developments in future decades. They involve large-scale investment and for this reason alone call for at least a minimum of prognostic planning and open debate, if the poor investments of recent years are not to be repeated. In this situation, changes are needed in three kinds of activity: co-ordination, and with it greater specialization of research; secondly, a redistribution of responsibility for research with a new legal and financial framework; and finally, in the relationship between research and school practice. A few examples may help. The erection of a central testing institute is urgently needed. The Council for Education has also put its support behind this demand, particularly in view of the problem of differentiation in the comprehensive school, the trend to standardized teaching procedures, experiments with compensatory education, etc. Empirical surveys have so far been possible only with considerable overhead expenditure of time and money, and fail because of this, amongst other things. The latter occurred in the case of the German part of the I.E.A. Study, which could ultimately be carried out

only in two of the federal states; even in these, the selection of schools had to follow according to their willingness to co-operate and to the chance supply of help with the administration of the tests.

The necessary concentration of curriculum research is another case in point. Existing curriculum research and development projects, at least those that, already, are empirical rather than predominantly theoretical, are restricted to partial aspects of the teaching process. To an extent, they are tied to a particular theoretical approach which starts from an analysis of the teaching process and the psychological and sociological conditions of teaching and learning, but which does little for the determination and co-ordination of learning goals. Studies of this sort are being conducted by the Berlin Study Group on Teaching Techniques (Berliner Arbeitskreis für Didaktik), by K.H. Flechsig in Göttingen and now in Constance (84).

In 1965, the Kiel University Institute for the Pedagogics of the Natural Sciences was set up with the support of the Volkswagen Foundation and at the instigation of the German Association of Technical and Scientific Societies (Deutscher Verband technisch-wissenschaftlicher Vereine). The scope of its work is also limited: it does basic research on natural science teaching, passes on research findings to school-teachers and works out models for teaching and teacher training in these subjects. So far, it has mainly carried out teaching experiments - programmed physics teaching, introductory physics, chemistry and biology teaching from the 5th school year onwards (85).

Where, though, attempts to arrive at learning goals by systematic research face the need to produce curricula for a whole phase of school education relatively quickly, as is the case in Hesse and North Rhine-Westphalia, a more summary process has to be resorted to, i.e. that of arriving at learning goals simply by a process of discussion.

A small working party at the Institute for Educational Research in Berlin is working on an extension model for curriculum reform embracing the systematic preparation of curriculum decisions, the construction and testing of curricula and the development and trial of techniques for rationalizing and standardizing decision-making (86). Although mathematics was chosen as the subject in which to try out the model, this approach with its extensive, long-term perspective is scarcely suitable as yet for affording immediate help in curriculum developments.

These examples illustrate the need to centralise and spend more on working out models for curriculum research and development. These should at the same time be delegated to as many institutions as possible which are connected with educational practice. No single institute or federal state can, by itself, meet the expense involved. The Volkswagen Foundation recently decided to spend 18 million Marks on curriculum research in two areas - primary education and socio-economic-cum-technical studies. The question arises as to whether the present fragmentation of the project groups and the shortage of research workers will allow the individual projects to be co-ordinated sufficiently for experience to be pooled and concepts tested in close co-operation with the schools.

The second problem area, the redistribution of responsibility and reallocation of funds, implies a change in statutory provisions affecting central research. Large-scale research in the Federal Republic

entails time-consuming negotiations, with no guaranteed prospect of success, with eleven different ministries of culture. Much time has to be spent collecting statistics before the main research can start. Lengthy negotiations were required to implant the idea of a central set of progressive statistics, as education policy is the last preserve of federalism in the Federal Republic, and the argument that any central collection of statistics brings the danger of manipulation still causes excitement, even though educational statistics present the least cause for disquiet.

The 'Working Group for Empirical Research in Education' in Heidelberg has a project also financed by the Volkswagen Foundation. It affords an example of the difficulties of doing research with the current state of educational statistics in the Federal Republic. The group has set out to produce a quantitative model of the education system in the Federal Republic which will allow the consequences of reforms to be assessed in quantitative terms. It incorporates a quantitative structural analysis of the education system, a study of factors affecting transition between schools and the development of a simulation model (87). The initial limitation of the work to one federal state, Baden-Württemberg, is symptomatic of the difficulties of such an enterprise which has to gather and process most of its own statistical data, or at least arrange for this to be done. In view of the new developments in the education system since the project began, it is doubtful how useful analytical models of this kind can be for educational planning in the years to come.

Finally, among the most important activities is that of mediating between research and practice. However important it is in the general dissemination of knowledge, the mere publication of research findings is no longer sufficient if reforms are to cease being unique occurrences and become a continuing process integral to educational practice. The difficulties that have marked the relationship between the Pedagogic Centre in Berlin and the schools show the need for such mediation to be intensified. Hitherto, it has been quite unusual to have teachers participating in the planning and execution of research projects, the development of curricula and - in so far as it was done at all - the evaluation of teaching experiments. Teachers' training, too, has if anything abstained from investigating the teacher's role. With such a state of affairs, it is hardly surprising that research and practice have diverged, with teachers seeing research as an intolerable surveillance of their work and research workers often acting as if they are in sole possession of the truth. School administrators are, for their part, unaccustomed to dealing with research institutes and to having experiments conducted in their schools.

The news that school experiments need to be properly controlled has made such a strong impact on part of the teaching profession that some teachers are waiting quite helplessly for research to help them, while others wear themselves out working unaided on meticulous minature projects, eventually from sheer frustration turning their backs on research as being irrelevant to the realities of the classroom. The Council for Education's accepted recommendation to submit 40 comprehensive schools to systematic study may bring a new impulse. All in all, there appears to be an urgent need to convey the thought to research workers that they have an obligation, and by no means a secondary one, to communicate research findings to the schools.

CHAPTER V

THE PLANNING OF INNOVATIVE PROCESSES, TRENDS AND PROBLEMS

The usual practice of prescribing reform "from above" at last seems to have been inverted. Pressure for innovation is now coming mainly "from below", i.e. by local authorities and schools, not to mention the unrest among the pupils themselves, who are no longer prepared merely to remain the last rung in a hierarchical ladder; in this, they are more emancipated than their teachers. The problems are mainly those of adapting the schools to modern needs, not just wider social needs but those of an individual wanting an education, and the conditions he faces. This calls, on the one hand, for considerably more flexibility in the development of the school system and, on the other, for a greater concentration of supra-regional planning. Expressed in such abstract terms, these requirements may seem paradoxical.

Educational federalism in the Federal Republic has, in the past, largely meant an elevenfold centralization at federal state level, which is further crippled by KMK agreements. There have been no guiding concepts, and hence no promise of fulfilment and no organized exchange of information. The educational administration in the states is directed more towards administration of the status quo than to planning for the future. The growth of the comprehensive school, for example, has brought this system into thorough disarray. There are, on the one hand, the numerous aspects of planning, the necessary co-ordination with research, co-operation with parents, the need to give the schools greater elbow-room in organization, administration and financial control. On the other hand, more extensive planning requires greater co-ordination between school administrators and planners initially at federal state level. Baden-Württemberg was the first state to create the preconditions of extensive educational planning by re-organizing its ministry of culture. The existing division into three departments for school education was supplemented, for example, by a planning department which, besides its specific planning tasks for all sectors of education, embraces all types of school up to the university. Innovations were preceded by special studies. Educational advisory bureaux were set up, the minister of culture drove round the state in person and appealed for support for the development of new types of school, a council for educational research was established by the minister, detailed school development plans were made and lengthy negotiations conducted over different schemes such as the privately initiated Weinheim comprehensive school experiment. Development plans, investigations, surveys and models were published, for all those interested, in a number of weighty volumes in the ministry of culture's series 'Education in a New Perspective' (Bildung in neuer Sicht), the result of work by special commissions, committees and research groups.

The eventual protest by the state treasury at this expenditure on planning and information (88) may have stemmed from traditional prejudices about the cost of educational planning. There can hardly be

any doubt - particularly in states such as Baden-Württemberg and Hesse, in which universal planning of school reform has been started - that, despite all efforts, the capacity of individual states remains inadequate for educational planning, and the effectiveness of planning models will be limited without supra-regional co-operation and stimuli.

Here we come to the second prerequisite of effective innovation - the need for a central authority, or at least consensus and corresponding financial provisions, for the future development of the school system. In the new prime minister's declaration of government policy, 'education and training, science and research' were given priority among projected reforms. The newly founded Ministry of Education and Science was given authority to carry out educational planning together with the federal states and to promote scientific research of supra-regional significance (Article 91b of the Basic Law).

It is intended to draw up a national education plan based on the exploratory work of the Council for Education and the Council for Science. The necessary investment in curriculum research and teaching technology involves sums which the federal states alone cannot meet, certainly not without restructuring their budgets. The Council for Education's estimates of the cost of school reform amount to well over half the total budget for the education system. The current state of the economy also sets limits to the funds available. An effect of the discrepancy between the speeches made about education policy and the funds set aside has already been seen in Berlin with the resignation of the Berlin Senator for School Education, C.H. Evers, who has hitherto been used as a fig-leaf for German education policy. It is neither here nor there whether the decisive reasons for this spectacular step really were the restrictions imposed by Berlin's medium-term planning of resources. In any case, there is a dilemma, clearly visible at national level - the discrepancy between assurances of the primacy of educational problems and tangible intentions to supply the necessary funds.

Education and science are to receive 8% of the gross national product by 1980, a level already attained by other comparable industrialized countries. Overcrowding of schools, dissatisfaction with curricula, quantitatively and qualitatively inadequate teacher training, however, already present problems. This is quite apart from the future growth in the Federal Republic - an increase later than the corresponding one in other countries as both the post-war rise in the birth rate and the increased demand for education beyond the minimum school-leaving age set in later than elsewhere.

Education policy has started moving. It started before the recent national election, as has been shown in various parts of this report. It seems, for the moment, premature to judge the consequences of greater involvement by the government in educational matters. Their neglect in past years has been too great. It is, however, utterly conceivable that those directly affected by the school system, the pupils - perhaps the teachers and possibly the parents too - will have to protest, as the students have in the last few years, if sensibly oriented innovations are to be possible.

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22. S.B. Robinsohn and J.C. Kuhlmann, "Two Decades of Non-Reform in West German Education", in: Comparative Education Review, Oct. 1967, Special Issue: "Ten Years of European Educational Reform 1956 - 1966" p. 311 ff.

23. There is a private sector of education, too (especially academic secondary schools, vocational schools and special schools for retarded and handicapped children). Private schools are now under statutory control; they may be supported by state grants, if they are recognized as efficient and substitute public schools ("Ersatzschulen"). But generally private schools do not play an important role either socially or from an innovative point of view.

24. This innovative impetus was partially influenced by the educational programmes of the Allied Forces, see R.F. Lawson, Reform of the West German School System, 1945 - 1962. University of Michigan. Comparative Education Dissertation Series, No. 4, 1965, p. 36.

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26. See H. Reimers, "Versuche einer Ordnung des deutschen Erziehungswesens durch die Kultusministerkonferenz", in: Versuche einer Ordnung des deutschen Schul- und Bildungswesens. Weinheim 1966, p. 15 ff.

27. "Düsseldorfer Abkommen" vom 17.2.1955, § 13, Abs. 2, in: Ständige Konferenz der Kultusminister. Kulturpolitik der Länder 1961 und 1962, p. 229.

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30. Empfehlungen und Gutachten des Deutschen Ausschusses für das Erziehungs- und Bildungswesen 1953 - 1965. Gesamtausgabe im Auftrage des Ausschusses besorgt von H. Bohnenkamp, W. Dirks, D. Knab. Stuttgart 1966, p. 17 ff., p. 963 ff.

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31. See Empfehlungen und Gutachten des Deutschen Ausschusses, op. cit., p. 59 ff.

32. See A.O. Schorb (Ed.), Für und wider den Rahmenplan. Eine Dokumentation. Stuttgart o. J.

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33. Empfehlungen und Gutachten des Deutschen Ausschusses, op. cit., p. 60.

34. Especially the work of Friedrich Edding who has promoted the development of this new branch "economics of education".

35. Schulbesuch 1961 - 1970, op. cit.

36. E.g. introduction of a 9th year of compulsory schooling, which was fully introduced only in five "Länder".

introduction of a foreign language in upper elementary schools.

reorganization of the rural all-age schools.

establishment of new types of continuation schools at the secondary level.

reduction of teachers' shortage.

improvement of teachers' salaries, see Vordringlich erforderliche Massnahmen auf dem Gebiete des Bildungswesens. (Erklärung der Ständigen Konferenz der Kultusminister vom 17./18.12.1964), in: Sammlung der Beschlüsse, op. cit., Beschluss Nr. 1011.

37. H. Becker, "Der Bildungsrat - Bildungsplanung als Lernprozess", in: Neue Sammlung 10 (1970) 1, p. 1 ff.

K.D. Erdmann, "Die Anfänge des Deutschen Bildungsrates", in: Die Neue Gesellschaft 13 (1966) 6, p. 440 ff.

38. Preschool education, problems of learning and the development of ability, organization and differentiation of courses, links between school and work, further education, teacher training, experimental programmes.

39. Series Deutscher Bildungsrat. Gutachten und Studien der Bildungskommission.

40. See especially Zur Neugestaltung der Abschlüsse im Sekundarschulwesen, op. cit.

The recommendations, widely based on the present school structure, are aimed at a broader supply of differentiated courses in the three main types of secondary schools, leading to equally differentiated school-leaving certificates, the Abitur I (after ten years of schooling) and Abitur II (after 12 or 13 years).

41. In 1968 and 1969, recommendations on experiments with day schools and comprehensive schools were published. Deutscher Bildungsrat. Empfehlungen der Bildungskommission. Einrichtung von Schulversuchen mit Ganztagsschulen (1968).

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43. See Ch. Führ, Schulversuche 1965/66, op. cit.

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45. W. Lempert, Die Konzentration der Lehrlinge auf Lehrberufe. Studien und Berichte. Institut für Bildungsforschung in der Max-Planck-Gesellschaft, Berlin 1966, p. 29 ff.

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55. E.E. Geissler, R.Ph. Krenzer, A. Rang, Fördern und Auslesen. Frankfurt, Berlin, Bonn, München 1967.

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